COMPUTERWORLD

NEWSPAPER

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DEC spins silk from 9000 snag

IBM-style attention draws buyer applause

BY MARYFRAN JOHNSON
CW STAFF

Bogged down by delays in shipping its first mainframe computer, Digital Equipment Corp. is turning a tough situation to its advantage by coddling its VAX 9000 customers with IBM-like hand-holding and special deals.

Interviews with several customers awaiting VAX 9000 deliveries indicated that DEC is becoming a quick study in the mainframe way of doing business.

"It's been a win-win situation for us," said George Kerns, vice-president of information services at Contel Cellular, Inc. in Atlanta. "I think they really understand what customers are going through. Of course, we wish the 9000 was available earlier, but the delay won't cause us a problem because DEC is providing us with alternative capacity in the interim."

Kerns met with DEC representatives last Friday to work out the logistics of adding a VAX 6000 processor to one of the Vaxclusters running at the fast-growing, $170 million cellular phone company. Contel will not be charged for the loaner machine but will likely be offered

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CA hits Goal with copyright suit, raid

BY JOHANNA AMBROSIO
CW STAFF

HOUSTON — Computer Associates International, Inc. sued systems software rival Goal Systems International, Inc. and one of Goal's developers last week, charging copyright infringement. The suit involves Goal's Jobtrac and Runtrac job scheduling and restart packages, which Goal acquired from an independent company in 1988.

CA filed the suit last Monday in U.S. District Court in the Southern District of Texas. U.S. marshals searched Goal's Houston office Tuesday, shut down the computer system and seized the source code for Jobtrac and Runtrac as evidence in the case. A temporary restraining order bars Goal from selling the products containing the questionable code. CA sells comparable job scheduling products called CA-11 and CA-7.

Whatever happens with the case, Goal will "stand behind our customers," President David Wetmore said. "If it's found that our code is questionable, we will rewrite it and offer the new version to existing customers. If they're not satisfied with it, we will refund their money. We will make things right in whatever way the customer feels is appropriate."

CA's counsel, Stephen D. Kahn, suggested that current Jobtrac and Runtrac customers may not have to give up their products. "CA is conscious of not hurting existing customers," he
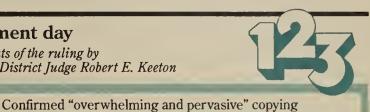

Lotus scores copyright win

BY NELL MARGOLIS
CW STAFF

BOSTON — A 110-page federal court ruling late last week handed Lotus Development Corp. an unambiguous victory in its closely watched "look-and-feel" copyright infringement suit against an alleged cloner of 1-2-3. Although industry observers agreed that the decision will have "significant impact on the industry," they differed widely as to who and what will be affected.

In finding for Lotus in its case against Paperback Software International, Inc. of Berkeley, Calif., U.S. District Judge Robert E. Keeton stated that copyright protection applies to the graphics, menus and commands of a software product, as opposed to the product's underlying code.

Judgment day

Highlights of the ruling by Federal District Judge Robert E. Keeton

✓ Confirmed "overwhelming and pervasive" copying of 1-2-3's interface by Paperback Software International

✓ Ruled that organization of menus and commands can be copyrighted

✓ Said individual commands, such as the slash key to invoke a menu, are not copyrightable

✓ Indicated that 1-2-3 did not infringe on such earlier spreadsheets as Visicalc

CW Chart: Tom Monahan

Observers agreed that for now, the finding is most important to software developers, who are still wrestling with the problem of what menus and commands they can legitimately borrow from leading software. However, observers said they expect the case to have a long-term impact on the availability of low-cost software look-alikes and will have a major bearing on pending copyright suits involving such firms as Apple Computer, Inc., Microsoft Corp. and

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Hero of the information age

The Jason Project's *Cathy Offinger accepts a Computerworld Smithsonian Award from Roger Kennedy of The Smithsonian Institution. Jason, which introduced 225,000 children to live undersea exploration, was one of nine award winners honored last week. Page 74.*

Unisys seeks software cure for profit ills

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Cost-cutting is the top priority at Unisys Corp., but unifying the software product line, rather than laying off employees, is the way to achieve it, Chief Executive Officer James A. Unruh told *Computerworld* recently.

"My No. 1 priority at the moment is to turn around the financial performance of the company, to get this company back to a profitable position," Unruh said.

However, rather than the draconian staff cuts of last year, when the company eliminated 8,000 jobs, Unruh said that cost savings will come increasingly from economies of scale achieved through common software and hardware components able to run across its product line — from mainframe computers down to Unix-based workstations and servers.

The glue to bind these systems will be the company's fourth-generation computer-aided software engineering products and a commitment to open

IN THIS ISSUE

Quotable

> "**T**hey patch what they have and add homegrown modifications."

DR. LAWRENCE BRENKUS
ARTHUR D. LITTLE

On pharmaceutical companies' lack of innovation in information systems. Page 49.

It's mid-1990 and still no recession. How 'bout some economist humor to celebrate? "These economists today are really something. They've actually predicted seven of the last two recessions." "Only difference between a dead economist in the road and a dead skunk are the skid marks in front of the skunk." "If you laid all the economists in the country end-to-end, we'd be better off." "A bunch of economists were marching with the army in the Soviet Union's May Day parade. 'What are they doing there?' a bureaucrat asked. A comrade replied, 'They belong with the army. You'd be amazed at the damage they can do.'" Cheers.
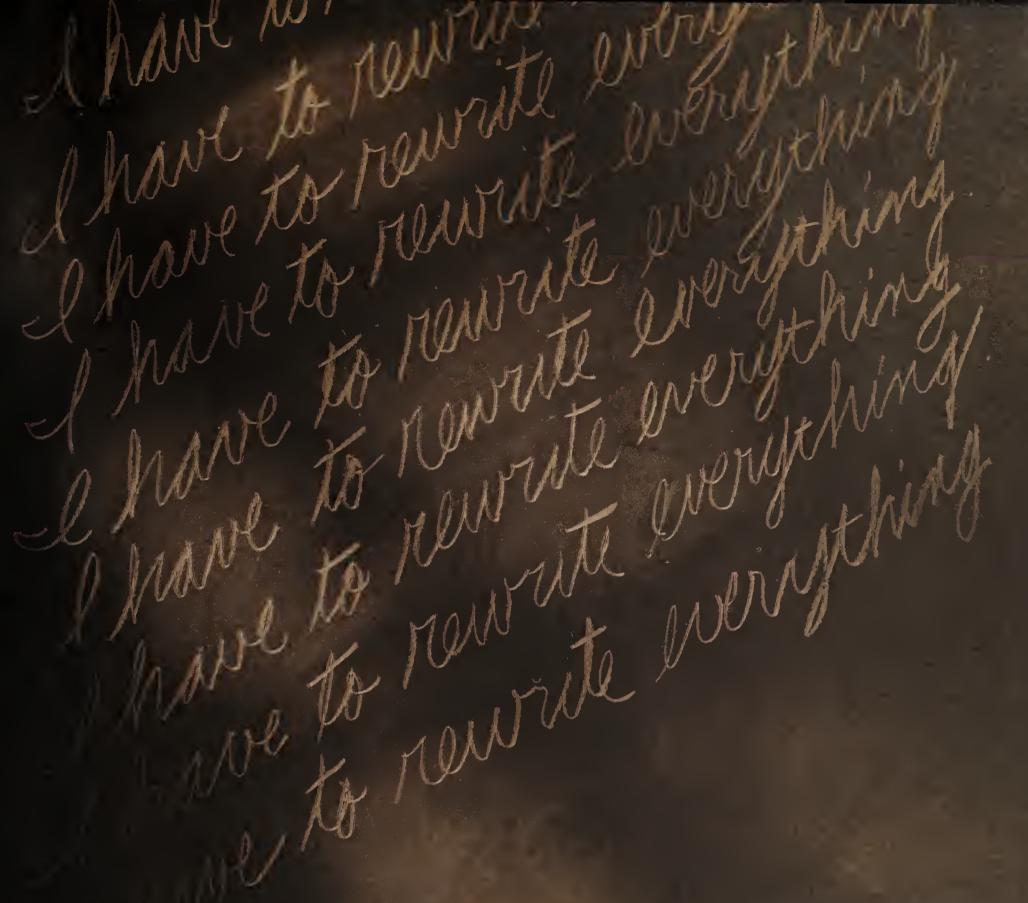
Joe Rodriguez

Pharmaceutical industry IS leaders like Glaxo's Joel Dobbs face a huge challenge in trying to cut drugs' time to market with technology. Page 49.

M. E. Cohen

Will AD/Cycle be a shot heard 'round the world — or a blank? Page 53.

EXECUTIVE BRIEFING

■ **Competitive pressures are heating up the profitable pharmaceutical industry,** and firms are looking to information systems for help. Shortening the lengthy product time to market — which includes research and development, clinical and field testing and the FDA approval process — is critical. So far, drug firms have only scratched the surface of IS benefits — long-established procedures and technology limits remain barriers. **Page 49.**

■ **Computer Associates goes on the copyright infringement warpath** against systems software competitor Goal Systems. CA won a restraining order last week preventing Goal from selling Jobtrac and Runtrac, two job scheduling and restart packages. Goal pledged to continue supporting the two products' customers, who number about 200. **Page 1.**

■ **Chargeback is still controversial** and difficult to implement in many IS shops. But new twists on the age-old issue are emerging, including charge rates based on single jobs completed and new competition from outsourcing vendors. **Page 25.**

■ **IBM brought CICS into the 1990s,** starting shipments of the Enterprise Systems Architecture version of the 22-year-old transaction processing operating system. IS managers welcomed the long-awaited version with open arms. **Page 8.**

■ **DEC is making up for the VAX 9000 delay** with special deals, customer handholding and loaner systems while customers wait, VAX users report. DEC appears to be sacrificing short-term revenue for long-term customer loyalty. **Page 1.**

■ **Sovran Financial Corp. will consolidate** four data centers into one and slash its IS operations staff by 50%. The move comes in the wake of the Norfolk, Va.-based banking firm's merger with Citizens & Southern in Atlanta. **Page 7.**

■ **MCI wasted no time in its bid** to become a major data communications firm. The firm claimed it can match AT&T in most data networking services to large customers, such as 45M bit/sec. connections and high-speed switched services. **Page 77.**

■ **A computerized traffic control system** that uses sensors placed in cars was unveiled on a pilot basis in Los Angeles. The $1.8 million Pathfinder project will produce a viability report for the technology in about a year. **Page 12.**

■ **Federal Express' package tracking system** is a testament to the power of belief in an idea, even when the technology to implement it is not yet available. The Cosmos II system earned the company a 1990 *Computerworld Smithsonian Award.* **Page 77.**

■ **Business schools may not be making the grade** in preparing graduates to manage in a rapidly changing business world where information technology plays a big part. **Page 51.**

■ **Most IS organizations have far to go** before they can embrace IBM's AD/Cycle. Many development groups are still in the information-gathering stage, but a solid 25% remain skeptical that the ambitious strategy is more vaporware than substance. **Page 53.**

■ **On-site this week:** For computer power to fuel its dramatic growth, America West Airlines has grown from PCs to Unisys mainframes to the IBM 3090. Core applications include a large personnel tracking system at the employee-owned airline. **Page 28.** Who says eliminating paper isn't a worthwhile goal? The U.S. Navy intends its PC-based job application system to replace the bulk of 110,000 pounds of civilian job announcement memos per year. The Navy's Crystal City, Va., personnel office begins deploying the new system this week. **Page 35.**

Suit

said. The combined Jobtrac/ Runtrac customer base numbers around 200.

In fact, odds are that the case will not even come to trial, said Daniel T. Brooks, a Washington attorney who specializes in computer law: "The risk to current users depends on how aggressive CA wants to be. But most of these kinds of cases are settled out of court." In the typical scenario, he added, Goal would make a cash payment to CA and give them some percentage of the royalties from the products.

CA is seeking a permanent injunction against Goal selling the products in question and is asking unspecified monetary damages that will depend on "the sales figures associated with the Goal products," Kahn said.

Wetmore said that Runtrac contributed "under $1 million" in revenue and Jobtrac accounted for approximately $3 million in the most recent fiscal year.

A hearing on CA's motion for a preliminary injunction is scheduled for July 6. In the meantime, Goal has suspended without pay Jerry Bennett, the developer of Jobtrac and Runtrac. Goal acquired the products in November 1988 when it bought J. William Bennett Co. in Houston for $1 million. Bennett and his company are named as defendants in the suit, along with Goal.

Bennett was unavailable for comment, but Wetmore said that to the best of his knowledge, Bennett has never worked directly for CA. However, when the products were developed in late 1987, Bennett was "an independent consultant doing work for a customer who had license to CA products," Wetmore said.
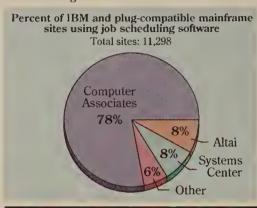
It is not immediately apparent which of the two Goal products contains the questionable code or whether both do. Runtrac has the restart and rerun features said to be at the heart of the case.

Until recently, Runtrac was sold as a component of Jobtrac. In other words, to get Runtrac, a customer needed to have Jobtrac up and running. However, with Version 2.0 of Jobtrac, released about a week before the suit was filed, Runtrac is now a separate package.

Goal is still selling Jobtrac but has suspended all sales of Runtrac.

"At this point, we don't know whether the case has any merit," Wetmore said. "We don't

Full schedule

CA's lawsuit involves job scheduling software, a market in which the firm already holds a commanding share

Percent of IBM and plug-compatible mainframe sites using job scheduling software
Total sites: 11,298

Computer Associates 78%

Altai 8%
Systems Center 8%
Other 6%

Source: Computer Intelligence   CW Chart: Paul Mock

have access to our source code or to the Computer Associates source code, and that makes it difficult to find out what's going on." Wetmore said that Goal officials at the Columbus, Ohio, headquarters found out about the suit only after the marshals had concluded their June 26 search.

One observer said that the search procedure was "not uncommon" in such a case. "If you're the plaintiff, you may feel that to give the defendant notice may allow the defendant to destroy evidence," said Barry D. Weiss, an attorney specializing in computer copyright law at the Chicago firm of Neal Gerber & Eisenberg.

The exact legalities surrounding the case are fuzzy, in part because the court documents have been sealed at CA's request. The documents contain "trade secrets that the plaintiff did not want publicly available," Kahn said. He did confirm, however, that the CA complaint includes four counts, the first two of which allege infringement of copyright and misappropriation of trade secrets.

IBM's low-end swing bids for long home run

BY RICHARD PASTORE
CW STAFF

If IBM's claim is true that the home computer will be the "VCR of the '90s," it remains to be seen whether the new Personal System/1 will be a VHS smash hit or a Betamax sales dog. Analysts are already questioning whether the machine will interest the work-at-home piece of the residential market, which is one of IBM's target segments.

The home office is a significant chunk of the overall residential computing market. "The real driver in home computing is the work-at-home user," said Tom Miller, an analyst at Link Resources Corp. in New York.

"People buying PCs for the home are buying for specific reasons — home office or work-at-home activities and education applications," added Andy Bose, home computing analyst at Link.

Yet, the PS/1 is underpowered for home-office applications such as Microsoft Corp.'s Windows 3.0 and Lotus Development Corp.'s 1-2-3 Release 3.0, according to Leslie Fiering, an analyst at Gartner Group, Inc.

"One megabyte [of memory] is a little low," Fiering said. To get a second megabyte of memory, IBM requires a user to shell out $570 for an expansion chassis and a memory board. That would hike the system cost to the level of an Intel Corp. 80386SX-based clone, which a user might as well buy in the first place, she said.

The total cost of an expanded PS/1 would also exceed the typical home worker's preferred level of investment, which Link pegs at $1,700.

Both IBM business partners and competitors suggest that the home-office segment will not be a big market for the machine. "It's an important component of the market but not the thing that sparks a revolution," said Mike Maples, vice-president of applications at Microsoft, which provided the PS/1 with a bundled version of Microsoft Works.

"The work-at-home market is not going to consider the PS/1 or the Tandy," said Ed Juge, director of marketing at Tandy Corp., which is planning to unveil a similar machine next month. Juge said the home machines would be of most interest to first-time users without serious work-at-home needs.

Analysts agreed. While serious work-at-home users may prefer to buy a $1,500 386SX-based clone, novices will be attracted to the PS/1's distinguishing features such as the built-in modem and Prodigy on-line service, Bose said. Also, ease-of-use features such as the graphical interface — as well as department-store distribution — "will create more home-computing awareness and interest over time."

"The PS/1 will help generate a lot of revenue for IBM," said Sam Albert, an IBM consultant and president of Sam Albert Associates in Scarsdale, N.Y. Albert predicted sales of one million units next year. Other estimates put 1991 sales at 500,000.

IBM already owns 15% of the home market, which Link Resources values at 10% of the $28 billion total U.S. PC market this year. Apple Computer, Inc. leads the pack with more than 23%. Commodore Business Machines, Inc. (19%), IBM and Tandy (11%) round out the top four, according to Dataquest, Inc. in San Jose, Calif.

Mid-Atlantic Senior Correspondent Johanna Ambrosio contributed to this report.

No place like home
IBM is bundling Microsoft Works and Prodigy with its newest "home" computer, the PS/1

IBM PS/1

CPU: 10-MHz Intel 80286

Memory: 512K - 7M bytes

Display: IBM Video Graphics Array monochrome or optional color

Communications: Internal 2,400 bit/sec. modem

Storage: Single disk (30M-byte hard disk optional)

Base prices: $999 and $1,999 (with color monitor and hard disk)

Source: IBM   CW Chart: Doreen Dahle

Madge card gets a case of the jitters

BY JOANIE M. WEXLER
CW STAFF

SAN JOSE, Calif. — Madge Networks, Inc. made a false start last month in shipping its 16M bit/sec. token-ring adapter cards, which it recalled last week because of a jitter problem in networks with more than 20 nodes, said Ed Murray, director of North American operations.

The company shipped about 2,000 of its Smart 16/4 Ringnodes, which connect computers to a token-ring local-area network, before discovering the problem. Madge said that all but 200 have been reclaimed.

Murray said that the recall probably affects between 500 and 1,000 customers.

The vendor cited a shortcoming in Texas Instruments, Inc.'s Falcon ring-interface chip as the jitter-causing culprit.

TI had identified a problem with the previous version of the chip running at 4M bit/sec. before release and had corrected it "in a new round of silicon" that was incorporated into Madge 16/4 products, Murray said. He said that Madge did not test the 16/4 cards in an actual 250-station network before shipping.

Madge and TI are currently "doing a whole lot of testing" to rectify the problem but cannot give a date when the boards will be reissued, Murray said.

NEWS SHORTS

Data center analysis service bows

Compass America, Inc., based in Herndon, Va., introduced a service designed to give corporate executives an objective statistical analysis of the unit costs of running a data center. The analysis — useful for making decisions about outsourcing — compares the client's data center with a reference group of efficient data centers and identifies areas for cost reductions. The service costs $30,000 to $100,000.

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Puette to head Apple USA

Apple Computer, Inc. plucked a key employee from a competitor last week when it named a 24-year veteran of Hewlett-Packard Co. to lead Apple's domestic sales division. Robert Puette, former general manager of HP's personal computer group, will take over today as president of Apple USA, which has been struggling after a period of managerial turmoil and weak revenue growth. Allan Loren resigned from the position in January as part of a management overhaul. The job had been filled on an interim basis by Chief Operating Officer Michael Spindler.

Apple's Puette

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Oracle offers Datalens

Oracle Systems Corp. last week announced a database management system interface for Digital Equipment Corp. VMS users running Lotus Development Corp. 1-2-3. The Oracle for 1-2-3 Datalens gives Lotus users on VAX/VMS systems full read-write access to Oracle data without leaving their Lotus screens. Users can query and modify Oracle data as well as perform complex SQL operations from within 1-2-3 applications, according to Oracle. The new product will be sold and supported by Oracle at prices ranging from $500 to $30,000.

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DEX extends ISO support

Digital Equipment Corp. expanded its support of standards-based factory communications last week by introducing DEC/Omni/VMS network interface, which is said to support communications between VAX/VMS systems and shop-floor devices via the International Standards Organization's Manufacturing Message Specification (MMS). Applications written to the interface will be able to communicate using either the final ISO version of MMS or the earlier Manufacturing Automation Protocol Version 3.0.

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DEC, AMS sign pact

DEC last week announced an agreement to market 20-year-old American Management Systems, Inc.'s (AMS) government financial management software on DEC's VAX line of computer systems — including its new VAX 9000 mainframe line. Through the agreement, Arlington, Va.-based AMS will offer its Government Financial System and Local Government Financial System products to DEC's customers.

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IS layoffs at Chicago bank

Continental Bank Corp. laid off 56 employees from its information technology services department last week. The bank said the employees supported Continental's futures and options execution-and-clearing business, which the Chicago-based bank disbanded. Continental said it is providing the former employees with severance packages and outplacement counseling.

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HP adds high-end PC

HP unveiled a 25-MHz Intel Corp. 80386-based PC that offers 32K bytes of cache memory and Super Video Graphics Array capability. The Vectra 386/25 is intended for spreadsheet analysis, computer-aided design applications and multiuser/local-area network configurations. Hard disk options range from 42M to 340M bytes. Prices range from $5,400 to $8,000.

More news shorts on page 76

Unisys
FROM PAGE 1

systems architectures and industry communications standards.

However, the plan will not include a unification of the two incompatible mainframe product lines — the 2200 and the A series, which evolved from the Sperry Corp. and Burroughs Corp. sides of the house, respectively.

"You don't drive the A series and the 2200 series together in terms of the operating system," Unruh said, "because that's what customers have written their application around, and there are huge investments out there that we have to protect for them."

When Sperry and Burroughs merged to form Unisys in 1986, they took on the job of bringing together several computing systems, an effort that observers have noted has proven more difficult than anticipated.

Unisys hopes to clear the air this fall, however, when it describes a set of formal software and communications standards to work across all its platforms.

Company officials outlined plans to use X/Open Consortium Ltd.'s X/Open standards for applications development and communications as the basis of a unified standards set, which will also include support for such de facto standards as IBM's Systems Network Architecture.

In addition, the architecture will emphasize the mainframe as an on-line transaction processing (OLTP) engine able to process thousands of transactions per second.

According to Scott Silk, Unisys' director of fourth-generation language (4GL) marketing and business development, Mapper — Sperry's end-user 4GL — and Linc — Burroughs' CASE development system for information systems shops — are finally working in tandem.

Sarah Leen
Unisys' Unruh *has no plans for hardware merger*

Silk said the first objective was to find ways to first integrate the systems and then expand their reach.

The first phase of the work is complete, he said. Linc II can take a single application specification and compile it on either a 2200 or an A series mainframe.

Meanwhile, Mapper has been ported to Unisys' U6000 Unix workstation line, and Unisys executives have promised ports to non-Unisys Unix boxes in the near future. A Unix implementation of Linc is also planned for

later this year, Unisys officials said.

At the same time, Ally — a 4GL tool for Unix, OS/2, MS-DOS and Unisys CTOS platforms — is being resuscitated and positioned as the primary 4GL for Unisys' OLTP computing platforms. Ally provides access to multiple databases and applications, including Unisys and third-party development languages and databases.

Last year, Unisys posted a $639.3 million loss, the worst since the company's creation in mid-1986 with the merger of Burroughs and Sperry. In response, Unisys underwent a wrenching 8,000-person staff cut. Unruh would not disavow further staff reductions or asset sales to reach the $10 billion company's stated goal of a $600 million to $800 million debt reduction by year's end. "In a sense, we have to restructure a little bit every day," he said.

Last week, Unisys sold $140 million of preferred stock to Mitsui & Co., a Japanese trading company that is a partial owner of Unisys' operation in Japan. Unisys also received a $50 million, five-year loan from Mitsui.

Regarding the outlook for the remainder of the year, Unruh said revenue would be up — but modestly. He observed that demand in the U.S. continues to be sluggish because of persistent worries about the economy and added that European business is slower than last year, overall.

High hopes for imaging

U nisys Corp. wants to be the "preeminent" vendor of cooperative network computing, according to Chief Executive Officer James Unruh, and one of the drivers for that will be imaging.

Unisys has invested "tens of millions of dollars" in imaging, Unruh said. Officials said they hope to claim 20% of what the Association for Information and Image Management predicted will be the $6.8 billion imaging market by 1993.

Unisys is not planning to use the mainframe as an image-processing hub but rather will locate this function at the server and workstation level.

This could be a distinguishing characteristic between Unisys and IBM in their imaging and long-term mainframe strategies, said George Lindamood, a Unisys watcher at Gartner Group, Inc.

"We believe that IBM will use the imaging to give its mainframes one last hurrah," Lindamood said. "It may be that Unisys is marching to a different drummer."

Mainframes, which Unisys has described as information hubs, are instead slated to be put to use as massive on-line transaction processing (OLTP) engines.

Unisys' mainframe business accounted for 30% of its revenue last year and is growing "in the single digits," according to company executives.

Meanwhile, its workstation and server business, now estimated to be growing at 12% to 15% annually, holds high promise because of the general move toward distributed processing and network computing.

OLTP will remain the province of the mainframe for the time being, said Brian Magowan, Unisys vice-president of systems software. To support these OLTP applications, Unisys will use Extended Transaction Processing Architecture (XTPA), an architecture Unisys announced for the airline industry in 1988.

The first implementation of XTPA can now connect four six-processor 2200 hosts. Eventually, Magowan said, XTPA will be able to support an 8-by-8 architecture with 64 IBM "Summit-class" machines.

Later this year, he continued, Unisys will apply the scheme to nonairline customers and applications.

ELLIS BOOKER

Western Union puts E-mail unit on the block

BY ALAN J. RYAN
CW STAFF

UPPER SADDLE RIVER, N.J. — Just two weeks after missing a June 15 deadline for a $51 million payment on junk bond interest, Western Union Corp. confirmed that it is involved in discussions to sell its Business Services unit.

Business Services is the company's technology unit, and it includes the electronic mail, volume telegram and Telex businesses. If the 138-year-old company is able to unload the unit, it will be left with only its Financial Services unit, which includes its money transfer and individual telegram businesses.

Al Casazza, a credit analyst at Moody's Investors Service, Inc. said the potential sale of Business Services is surprising. The unit, he said, accounts for nearly half of Western Union's operating profit.

"Of all the businesses they are in, electronic mail was the fastest growing," Casazza said.

In an interview earlier this year, Steven Graham, vice-president of marketing for Business Services, said that the Easylink E-mail system with its electronic data interchange options was a potential growth area for Western Union.

Western Union claimed to have the largest installed base of public E-mail systems in the nation with more than 200,000 subscribers. The service can connect users to other U.S. Easylink users, more than two million Telex terminals worldwide and more than three million facsimile machines worldwide.

If Business Services is sold, Western Union's only profitable business will be its money transfer operation, Casazza said. "You could almost say they are dismembering the company," he said.
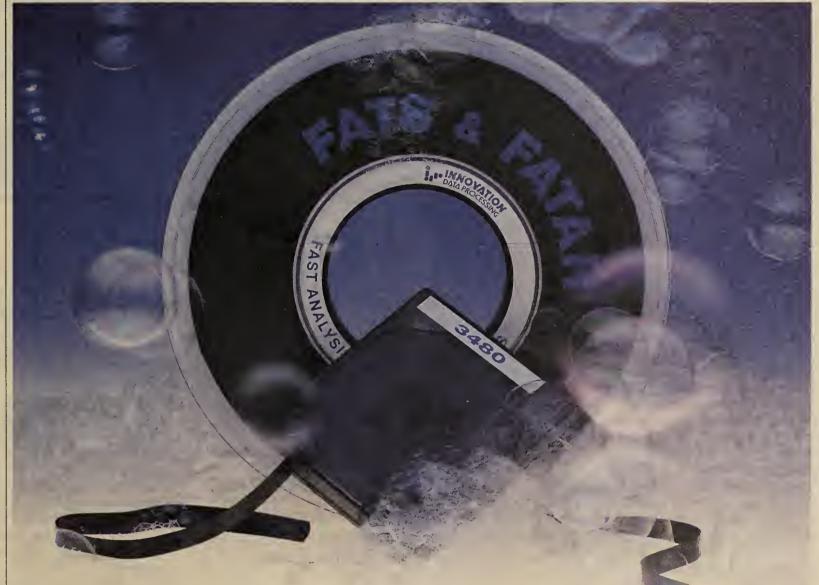
It is unlikely the sale of the Business Services unit would have any impact on users of its products, assuming the new owner continued to support the products, analysts said.

Western Union spokesman Warren R. Bechtel said any agreement regarding the sale of the Business Services unit would be conditional on completion of a Western Union debt restructuring and that there

can be no assurance that any agreement will be reached.

Western Union shareholders will meet Friday for the company's annual meeting (postponed from June 15) and are expected to vote on a proposal to reclassify certain preferred shares to common shares. The company is proposing to refinance up to $530 million of its debt by reclassifying common shares and notes as part of the recapitalization plan filed with the Securities and Exchange Commission.

"Even if the exchange offer is successful, maybe they are thinking of winding down to repay the debt they can pay and then close out the business," Casazza said. He added that it is possible that Western Union might sell off the unit with the intention of buying another business.

Sovran to merge data centers

BY SALLY CUSACK
CW STAFF

NORFOLK, Va. — Sovran Financial Corp., a $25 billion holding company, announced last week that it plans to consolidate all four of its banking data centers into one operation, to be located in Villa Park, Va., by the end of 1991.

A spokesman said that the move will affect 130 positions in the data centers, with about 60 of these targeted to move to the Villa Park facility. The remaining 70 or so employees will be offered other positions within the company.

The spokesman declined to comment either on potential or realized cost savings derived from consolidation or on specifics of the hardware and software environment.

Sovran employs approximately 15,000 people nationwide, scattered across the firm's individual leasing, insurance and mortgage companies.

The move was also designed to coordinate with the company's merger with Citizens and Southern Corp. (C&S), expected to culminate later this year. The two companies have announced a definitive agreement to combine under a new holding company — Avantor Financial Corp. — in a tax-free, stock-for-stock transaction. The Federal Reserve Board officially accepted the Sovran and C&S merger applications May 25.

The union is a merger of equals, according to Elisabeth Albert Hayes, a senior financial analyst at Johnston, Lemon & Co. in Washington, D.C. "What they have done is create a bank that runs along most of the East Coast, from Maryland downward," she said, adding that each company has strengths in different yet complementary areas, so there will be no overlapping of branches. "What you're seeing now is back-office consolidation," she said.

According to John J. Sponksi, executive vice-president for corporate operations and technology, the new center will "reduce current operational and managerial complexities" resulting from the maintenance of multiple data centers.

Overhauled CICS ships to eager customer base

BY ROSEMARY HAMILTON
CW STAFF

IBM's CICS, a mainstay in many IBM mainframe shops, is finally moving out of the 1960s.

The company was scheduled to begin shipments last week of CICS/ESA Version 3, Release 1.1, the biggest overhaul in the transaction processing system's 22-year history.

Information systems managers contacted said they welcome the change and plan to install it soon.

"It has been somewhat constricted by being basically a 360 architecture system," said Doug Underhill, assistant vice-president of technical services at CSX Technology, the IS division of CSX Corp. "This release positions it to grow with new technologies that will come along."

The new version restructures some of the CICS innards while also doing away with older methods of interacting with it, according to IBM and observers.

For example, the new version has been designed with separate internal areas called domains. If one domain needs modification or crashes, it will not hurt other data, which can occur with the current version. This boosts reliability and also brings CICS closer to a continuous operation mode, noted Michael Sztejnberg, a vice-president at Manufacturers Hanover Trust Co. in New York.

"CICS was pretty much an open box, so programmers could get in there and muck around," said Joel Goodman, a senior consultant at Circle Education Ltd., a consulting firm in London specializing in CICS.

"The functional boxes can be isolated from programmers," Goodman added. "If they obey the rules to the [domain's] interface, they can use that function. This should prevent people from going and messing around with it. It is now finally engineered as a proper software product should be."

The internal changes will not affect end users, but programmers will face "re-education efforts," according to IBM.

This version can make full use of MVS/ESA features, such as expanded storage. This should boost performance by placing more data in expanded storage and thus reduce the need to go out to a disk for data.

The current CICS can run under MVS/ESA but cannot use all of its functions. Additionally, the new version offers support for the C programming language, a first for CICS.

"I'm sure we'll have the tape as soon as it's available," said David Moore, a senior vice-president at Mellon Bank NA in Pittsburgh. "This removes some of the constraints to better performance."
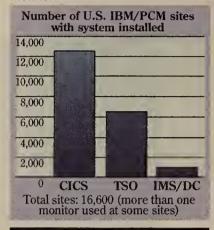
CICS was introduced in 1969 as a teleprocessing or transaction processing environment for a terminal-based user population supported by mainframes. CICS functions as a traffic cop, allowing terminals access to applications written for a CICS environment.

Over the last two decades, IBM has rolled out nine new releases of CICS, each one adding features to keep up with industry advances, such as multiprocessor support. However, each release was a patch onto the older code, originally written in assembler language, according to Goodman.

"It was still based on the way computers worked in the 1960s," Goodman said.

The new version, however, was written to accommodate more current methods of both programming and software management. For example, this version no longer works with macro-level commands with the exception of assembler language programming, according to Goodman. Macro-level commands had long been the way programmers talked to CICS, and the commands required indepth knowledge of the CICS code.

With CICS/ESA Version 3, programmers must use the newer command-level interface, which was first introduced in the late 1970s. This approach requires less knowledge of the CICS internals and allows a programmer to write a more simple command to access CICS.

Top of the charts
An estimated 75% of all IBM and plug-compatible mainframe sites use CICS as a teleprocessing monitor

Number of U.S. IBM/PCM sites with system installed

Total sites: 16,600 (more than one monitor used at some sites)

Source: Computer Intelligence

DEC
FROM PAGE 1

"an excellent deal" on purchasing it later, Kerns added.

"The big guys like IBM and DEC have exceedingly strong balance sheets and the staying power to do [loaner programs]," said Byron Walker, an analyst at Moody's Investor Service, Inc. in New York. "If you are savvy about what customers need and your product is slightly delayed, it's a very good strategy to use."

While loaner programs will delay the additional revenue Wall Street is waiting for, Walker said DEC must protect its market share and sustain "the tremendous long-term goodwill" of its customer base.

He and other financial analysts originally said they expected to see a revenue boost for DEC by late this year, but the company's recent acknowledgment that volume shipping has been delayed until next quarter has shifted that expectation into at least the first quarter of 1991.

At the University of Pittsburgh, where a VAX 9000 was expected last month but has now been delayed until September, DEC is filling in the gap with a VAX 6000 Model 440, said Paul Stieman, associate vice-president for computing and information services.

The discounted price the university paid for the midrange machine will be subtracted from the price of the mainframe once it arrives, he added.

"We made some adjustments, and DEC accommodated them," Stieman said. The university uses mainly DEC equipment for its academic research and instructional computing, with administrative and financial processing on Amdahl Corp. hardware and IBM mainframe system software.

"I feel DEC performs very positively and in a comparable fashion to mainframe vendors," he added.

Stieman also noted that the researchers who will use the VAX 9000 for a variety of scientific and technical applications were mollified to learn that the mainframe would be faster than original benchmarks indicated.

DEC recently released new benchmark results on the VAX 9000, showing a 33% improvement over the originally announced speed of 30 million instructions per second.

Litel Telecommunications Corp. in Columbus, Ohio, was the first company to order a VAX 9000, and it will be one of the first this summer to accept delivery of the mainframe.

"We're getting excellent preinstallation, pre-engineering and support for the 9000," said Michael Guider, vice-president of network and information services at Litel. "But it would be fair to say Litel is very, very anxious to receive this system and apply it to our business. I think the majority of customers would feel that they would rather wait to have it work well than put it in before it's ready."

"We really want to protect their business as well as ours," said Phil Grove, a marketing consultant at DEC.

Grove stressed that the technology problems have been worked out at this point and that volume manufacturing processes are under way this month for VAX 9000s at DEC's Cupertino, Calif., facility.

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>
> MICHAEL GUIDER
> LITEL TELECOMMUNICATIONS

CORRECTIONS

Six hundred and sixty Digital Equipment Corp. users responded to an industry trends survey conducted by the Digital Equipment Computer Users Society at its conference in May. An incorrect number was cited in "Portrait of DEC users, East to West Coast" [CW, June 25].

A Page 1 chart on U.S. defense procurements [CW, June 25] should have noted that the figures were in billions of dollars.

Olof Soderblom's token-ring patent has not been suspended [CW, June 25]. The U.S. Patent Office issued an initial response to suspend the U.S. patent, but the decision is not final.

Lotus spreads 1-2-3 wings in DEC, IBM host territory

BY RICHARD PASTORE
CW STAFF

CAMBRIDGE, Mass. — New products keep appearing from Lotus Development Corp. like mechanical ducks in a shooting gallery. But users are not shooting them down. On the contrary, last week they praised the functionality of Lotus' 1-2-3 for All-In-1 and 1-2-3/M for IBM's advanced MVS and VM operating systems.

Users of Digital Equipment Corp.'s All-In-1 integrated office system can now run 1-2-3 within All-In-1. The spreadsheet package, which is linked with All-In-1 at the code level, began shipping last week.

The 1-2-3 application will appear as a menu choice in All-In-1's main menu. The Lotus product will also conform to All-In-1's simplified terminology, such as "documents," "folders" and "cabinets." In addition, 1-2-3 will function with the DEC product's specially configured shortcut, Gold Keys.

Two users of All-In-1, which reportedly has a user base of three million, hailed the integration features they expect to gain from the new 1-2-3 but expressed concern over the effect on the spreadsheet application's speed.

It takes several annoying steps to transmit and import personal computer-derived 1-2-3 spreadsheets into the VAX system at Grinnell Mutual Reinsurance Co. in Grinnell, Iowa, said David Renaud, director of technical services. The integration within the DEC environment will eliminate these hassles, said Renaud, who does not yet use the new 1-2-3 version.

The VAX-based 1-2-3 makes for "a slicker operation," added Dan Snyder, vice-president of MIS at Tyson Foods, Inc. in Springdale, Ark.

VAX users can share spreadsheet data much more easily than if they had to import spreadsheets from PCs, Snyder said.

However, Renaud and Snyder expressed concern that a multiuser version of 1-2-3 would yield slower response times. "It's hard to have it all," Renaud said. "If your priorities are blindingly fast response times, then a stand-alone PC is probably your best bet."

The product will reportedly run on all VAX/VMS computers running All-In-1. The price depends on the platform: A version for the Microvax 3100 costs $3,554; one for the VAX 6210 retails for $14,484.

Lotus also announced shipment last week of 1-2-3/M for use with IBM's MVS/XA JES 3, MVS/SP, MVS/ESA, VM/SP6 and VM/XA operating systems. The product has been available since March for MVS/XA JES 2 and VM/SP5.

The product prices are dependent on platform and range from $15,360 to $47,470 for primary licenses. Monthly licenses sell for $583 to $1,800.

New Twist On An Old Problem

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Motorola, Hitachi plan to settle chip dispute out of court

BY JAMES DALY
CW STAFF

Computer manufacturers breathed a sigh of relief last week when Motorola, Inc. and Hitachi Ltd. agreed to bury the hatchet on a patent dispute that once threatened to disrupt the supply of a vital computer chip to the U.S. market.

The out-of-court agreement effectively ends the threat of a ban on sales of Motorola's 68030 chip, which was found to infringe on a Hitachi patent. The chip forms the computational heart of systems produced by Apple Computer, Inc., Hewlett-Packard Co., Sun Microsystems, Inc. and Next, Inc.

Neither Motorola nor Hitachi would release details of the agreement.

Although both firms characterized the deal as only a framework for settling the 18-month-old dispute, a Hitachi spokesman said final arrangements should be made within three months. "We don't expect customers to be inconvenienced," the spokesman said. The companies agreed not to press for injunctive relief against each other while negotiations continue.

While most analysts said it is likely that the final arrangement would never be made public, they said they expected that the firms will agree to cross-license their patented technologies — the same arrangement that caused the dispute in the first place.

The problems began in January 1989 when, after 14 years of partnership, Schaumberg, Ill.-based Motorola accused Japan's Hitachi of overstepping the bounds of a cross-licensing pact. But the strategy backfired a few days later when Hitachi countersued over patents of its own that Motorola had allegedly violated.

On March 29 in Austin, Texas, U.S. District Judge Lucius Bunton found both companies guilty. Motorola was subsequently banned from selling the 68030 while Hitachi's H8 chip was barred from sale in the U.S.

Bunton granted a stay of the order until June 18 to give both companies time to settle their differences out of court, but the stay expired without a settlement. The order was reinvoked but was again put on hold after Motorola appealed to the U.S. Circuit Court of Appeals in Washington, D.C.

Experts said the dispute over niggling technical details is tied to a ploy now commonly used among sparring firms. "Patents have increasingly turned into weapons when company partnerships don't work out," said Michael Slater, editor of the "Microprocessor Report" newsletter in Sebastol, Calif. "Both companies have fought in the courtroom in the past, and now they're debating over very tiny little features that could exist in any device."

Nick Tredenick, a member of the design team that created Motorola's 68000 microprocessor line and an expert witness who testified in the Motorola/Hitachi case, agreed that the lawsuit resulted more from ill will than from legitimate infringement claims. "It was crazy; the Hitachi chip looks nothing like any Motorola microprocessor," said Tredenick, who now heads up Tredenick, Inc., a chip design firm in San Jose, Calif.

Computervision targets low end

BY SALLY CUSACK
CW STAFF

BEDFORD, Mass. — The Computervision unit of Prime Computer, Inc. wooed its existing customers and suppliers last week with a family of low-priced prepackaged · hardware and software products.

The BabyCADDS computer-aided design and manufacturing systems are based on Sun Microsystems, Inc.'s Sparcstation 1 + and are tagged at a list price of $28,900.

According to Erik Keller, an analyst at Gartner Group, Inc. in Stamford, Conn., Computervision is working hard to maintain account control this year, and this announcement is geared toward that end.

"It does effectively bring the prices down for their current users," he said, "and BabyCADDS offers good integration capabilities with the existing CADDS product line, but it will not bring in much — if any — new business." Keller said that the only new users would be those interested in buying into the entire suite of Computervision CADDS products.

The first component of the product line is the 42F/CADDSdraft system, which combines Computervision's CADDS 4X software for three-dimensional modeling, drafting and detailing with Sun's desktop workstation.

The 42F/CADDSdraft supports the AT&T Unix System V, Release 4.0.3C operating environment and features a 16-in. color monitor, 12M bytes of random-access memory and more than 200M bytes of disk storage space. Shipments are scheduled for the third quarter.

Green light for traffic monitor test

BY CHARLES VON SIMSON
CW STAFF

LOS ANGELES — The highway of the future arrived with an electronic screech last week, but as formal testing begins today, its designers hope they will not have to hit the brakes.

The California Department of Transportation (Caltrans) is slated to begin the first phase of a project designed to test the viability of transmitting information on traffic conditions collected from electronic sensors on the street to computer-equipped automobiles. The $1.8 million Pathfinder project will conclude with a report to sponsors next summer on the potential for delivering information to traffic-congested Southern California motorists.

"The lesson we learned from the Olympics is that we can use our traffic information system effectively to relieve congestion," said Jerry Baxter, director of Caltrans' Los Angeles region. "What we want to learn from Pathfinder is the impact of giving drivers more information about traffic conditions."

At a media event last week, however, an uncooperative data transmission system caused the small computer in one of the test automobiles to squeal like a tormented alien. "In the early stages of a system like this, you often don't know what will happen until you turn it on," said Goro Endo, senior transportation engineer and head of the Pathfinder technical team. "But I think we are in good shape to begin solid testing."

To start, Caltrans employees will volunteer to drive the 25 cars donated by General Motors Corp. and equipped with an electronic navigational system from Sunnyvale, Calif.-based Etak, Inc. The volunteers will head to work on prearranged routes along which they will be tracked by computer.

The Etak system includes a number of sensors within the car that monitor speed and allow it to transmit and receive data. As much as delivering information

> "IN THE EARLY stages of a system like this, you often don't know what will happen until you turn it on."
>
> GORO ENDO
> CALTRANS

to the drivers, Caltrans hopes to use the cars as mobile traffic sensors to augment the 900 sensors placed in streets and highways in Los Angeles, Ventura and Orange County.

Electronic monitoring of the streets is nothing new in the Los Angeles area. Since the 1970s, information has come from sensors via leased lines into a mainframe computer at the district's headquarters. The information is used to generate traffic advisories to local media, as well as create a historical database for use by traffic engineers in the planning process.

The new twist is the installation of an Intel Corp. 80386-based personal computer that, starting today, will take information from a 14-mile stretch of the Santa Monica Freeway and, via data radio, transmit traffic conditions to computers and monitors in the test cars. If traffic is moving at less than 20 mph on the stretch, a solid triangle will appear pointing in the affected direction of travel; if the traffic is moving between 20 and 35 mph, there will be an outline of the triangle; and when traffic is moving faster than 35 mph, no triangle will be visible.

The cars will operate next year with decreasing control over their routes. At the end of the process, a report will be made to the three sponsors: the Federal Highway Authority, Caltrans and GM. The hope is that the system may one day become integrated into monitoring systems in congested areas and become an option on automobiles.

Dexpo East ain't no cure for the summertime blues

BY MARYFRAN JOHNSON
and MAURA J. HARRINGTON
CW STAFF

BOSTON — With 15 booths and 10,000 sq ft of floor space devoted to showcasing its long-awaited integration products, Apple Computer, Inc. and Digital Equipment Corp. dominated the show at Dexpo East last week.

Whether it was worth dominating was another matter.

Wedged between next Monday's opening of Decworld in Boston and the recent Dexpo South in New Orleans, attendance was on the pitiful side — only 2,820 attendees, less than half the number that showed up for Dexpo South in New Orleans last month.

Most users applauded the appearance of integration products such as DEC Lanworks for Macs, lamenting only that it took more than two years to see results from the DEC/Apple alliance.

Mark Scherfling, supervisor of Unix and communications support for GTE Laboratories in Waltham, Mass., said his firm and its 600 users did not wait around for DEC and Apple, however. GTE uses Alisa Systems, Inc. integration products to connect more than 350 Apple Macintoshes to its DEC Vaxcluster via Ethernet.

"We're still waiting for good compound document architecture between DEC and Apple," Scherfling said, referring to documents containing text, graphics and data. He said that while DEC has admirable compound document capabilities now, Apple still lags in that area.

John Davis, a database administrator for Konica Quality Photo East in Scarboro, Maine, was eager to see Decwindows running on a Mac. Unfortunately, the new software was not working on the first day of the three-day show.

"I'll come by again tomorrow," Davis said with a shrug.

With two Macintoshes in his office now, Davis said he hopes to eventually offload some programs running on Konica's VAX 8350 clustered with a dozen Microvax IIs.

"It's not so much what we can't do now on the Macs but that our VAX is overloaded," he said. "I'd like to enable my people to get data off the VAX and put it right into Mac applications."

Home on the midrange

Jim Leither, executive director of the Boston Computer Society's Macintosh user group, said he would like to work at home on his Mac and access information stored on the VAX at work.

"This is all very exciting to me. I just wish it was a little more Mac-oriented," Leither said of the integration products. He complained that the MacX server — an X Window System-based display server for the Macintosh that is equipped with a Decwindows look and feel — forces Mac users to learn a new graphical user interface.

Michael Harrington, a systems manager at Beth Israel Hospital's biomechanics research laboratory, said he was eyeing DEC Lanworks for a planned integration between Macintoshes in his lab and a similar research lab at nearby Brigham & Women's Hospital. The two labs, which have about 25 Macs between them, are planning to build a patient-tracking database that is mutually accessible via their Macs over a Decnet network backbone.

DEC Lanworks, introduced in May and scheduled to ship in late September, is a set of client/server software products that enable VAXs to act as file or print servers for Macintosh local-area networks.

Like other users, Harrington was optimistic about the increasing numbers of alliances between DEC and third-party software vendors. "It does seem like DEC is opening their arms to PCs and Macs now and realizing that's where the money will be," he said.

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ADVANCED TECHNOLOGY

This robot walks on the wild side

Carnegie Mellon's Ambler is intended for Mars but may find a home on Earth, too

BY GARY H. ANTHES
CW STAFF

Computer specialists and engineers at Carnegie Mellon University in Pittsburgh are building a 12-ft-high robot that will be able to walk up steep slopes and avoid boulders, gullies, quicksand and other hazards that would put a Range Rover to shame.

Packed with sensors, processors and software, the robot will be able to work autonomously, selecting and navigating routes without relying on externally supplied commands.

The Robotics Institute at Carnegie Mellon is building the six-legged robot, dubbed Ambler, for the National Aeronautics and Space Administration (NASA) as a prototype for walking vehicles to explore the Moon and Mars. Officials at Carnegie Mellon and NASA, however, said that the technology also has applications in more down-to-earth activities such as logging, hazardous waste clean-up, construction, mining, agriculture and emergency response.

When the going gets tough, Ambler gets going. Earlier space rovers — the Apollo lunar rover and one built by the Soviet Union — were wheeled vehicles.

"That was easier to understand. We've been building wheeled devices for thousands of years," said David

Tom Monahan

Lavery, manager of NASA's Planetary Rover Program. However, rovers with wheels cannot move over extremely rugged terrain, he said.

A problem with earlier walking devices was that they had too little onboard intelligence, Lavery said. Because it takes 45 minutes to get a command from Earth to Mars, the

rover must be able to work productively on its own, given only general directions, he added.

"It took a heck of a lot of computer science to get it to move in an intelligent, autonomous way," said David Pahnos, assistant director of the robotics center at Carnegie Mellon. Software drives three critical func-

tions — perception, task control and motion control, he said.

Ambler's field of view — about 30 meters by 30 meters — contains three-dimensional images built up from an infrared scanning laser range finder, a sort of light radar. A path planner pinpoints Ambler's destination based on its mission and then determines the general route to be followed in getting there. A footfall planner determines each step.

Task-control software developed from models of foot-soil interactions interprets data sent from force sensors on each of the robot's six feet. According to Eric Krotkov, research scientist at Carnegie Mellon, the software is able to determine soil density, stiffness and friction, allowing Ambler to guess if it is on soil, sand, gravel, rock or snow.

If Ambler does not like the feel of the ground beneath its latest step, it tries a different step with the same foot. If it cannot find any position to its liking, it puts that foot back in its previous place and tries a step with a different foot. If no foot can be successfully moved forward, Ambler retraces its steps exactly to a point at which a new path can be tried.

These basic concepts have been proven with one foot, and Carnegie Mellon will soon try them in a six-legged configuration, Pahnos said.

The technology for Ambler is not restricted. It could be licensed by Carnegie Mellon for such applications as walking construction cranes or agricultural machines that walk through crops without leaving tractor tire ruts, Pahnos said.

Staying on guard with a computerized watchdog

BY MICHAEL ALEXANDER
CW STAFF

It's not exactly Robocop. More like Robogrunt, actually, but the idea is the same — a robot designed to keep the bad guys at bay.

Researchers in the advanced technology division at Sandia National Laboratories in Albuquerque, N.M., have developed a portable security system for the military that includes a mobile electronic watchdog, a portable security sensor station and a control console.

The Remote Security Station is intended to supplement humans standing guard duty in the field or wherever there are "high-valued assets to protect," said Bryan Pletta, project leader and a member of the technical staff at Sandia. "Humans are excellent observers, but after 10 hours, they are not so alert."

The security system is deployed in the field using either the mobile watchdog, the stationary security

station or both simultaneously. The two can be operated from a control console up to one mile away.

The radio-controlled robot — called Thomas for TMSS, which stands for Telemanaged Mobile Security Station — is built around a Honda 350 four-wheel-drive, all-terrain vehicle and includes a computer, video camera and radio links to relay signals from sensors and video to the control console. The video camera and array of sensors are mounted on a pneumatic mast that can be raised up to 10 feet for surveillance while the rest of the vehicle remains hunkered down behind cover.

"Thomas gives the system a versatility that we could not attain with just the portable station," Pletta explained. "If an intruder were in a ravine or behind cover, it's not likely that the portable station's video camera could pick him up. Thomas could

be used to scout the area while the console operator remained in a safe location."

The portable security station, which is small enough to be hauled in a pickup truck, is equipped with a computer, video camera, ground surveillance radar, infrared motion sensor, microphones and other intrusion sensing devices. The station, which is

Sandia's *Pletta with security station and robot*

mounted on a platform that can tilt and revolve to adjust its field of view, also has weather sensors that measure wind speed, temperature, ambient light and precipitation.

Thomas and the portable security station are operated from a control console that is equipped with an Intel Corp. 80386-based computer for the

operator interface and communications display; a Motorola, Inc. 68020-based computer for video motion detection; and a Motorola 68000-based computer for acoustic detection. The robot's direction, speed and braking are controlled with a joystick mounted into a table top.

The console also includes a digitizing tablet, used to input site maps, a touch screen for controlling some security functions and assessing alarms, a graphics display for site maps and location of security stations and two black-and-white monitors for video.

All of the console equipment is mounted on two 19-in. equipment racks, which can be installed in the back of a truck or in a permanent security facility.

Several enhancements are in the works for the remote security system. Researchers are in the process of installing in Thomas an Intel 80286-based computer, advanced sensors based on neural networking technology and software that will enable the robot to roam on its own. The system will also be expanded so that it can control up to five robots or stationary security stations.

EDITORIAL

Get real

A RECENT REPORT FROM the U.S. Department of Commerce has added fuel to the smoldering pile of arguments favoring direct and targeted government aid to some of the nation's high-technology industries.

Some are interpreting the report, one in a continuing series on competitiveness from Commerce, as evidence that the Bush administration's "no-policy policy" toward key economic sectors is failing, in part because other nations are more directly aiding their high-tech bases.

To a certain extent these critics are right, but for the most part, they are failing to see beyond the basic findings of the report.

Specifically, the report says that key high-tech growth industries in the U.S. are in danger of being surpassed by the Japanese, et al., because of the relatively high cost of capital, inattention to advanced manufacturing techniques (related to the first finding) and the fixation of U.S. business leaders on the very short term. The report also listed as causes the help some foreign businesses get from their governments and attending unfair trading practices. Let's start from the bottom of this list.
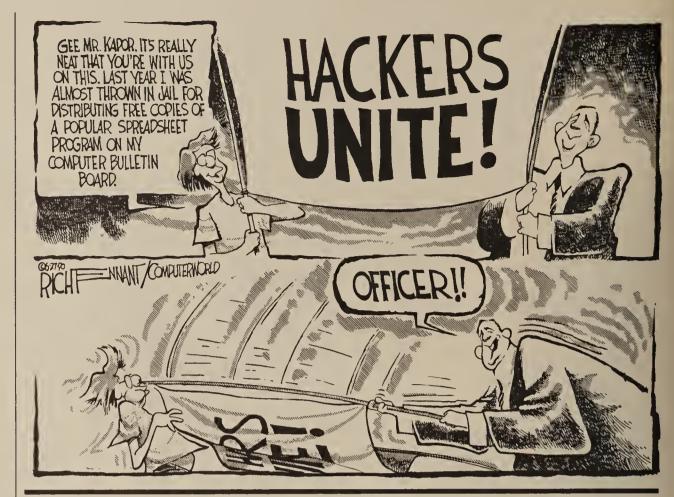
Show us an example of direct government aid that has produced a world-class market competitor. Let's see, there's the old British Overseas Air Corp. And our federally insured and abetted savings and loan institutions. How about the entire Soviet economy? And, of course, there's U.S. Memories. Suffice to say, it doesn't work.

If it can be proven that foreign governments are competing unfairly, then we have very effective ways of dealing with that if the will to do so exists. However, let us be honest. Sure, the Japanese have made it difficult for U.S. vendors to sell into consumption monsters like its Nippon Telephone and Telegraph. But how many Japanese firms are allowed to sell into our $300 billion defense glutton? It is realities like these that ultimately get in the way of efforts to level international fields of competition.

What will direct government aid to any U.S. industry do to prevent elemental ravages of corporate greed? Under Roger Smith, General Motors lost huge chunks of market share, yet Smith will get a whopping retirement package that has GM's board blushing. Peter Cohen, ousted for doing such a "wonderful" job at Shearson Lehman Hutton, will reportedly get a $10 million severance package. Take that, you naughty boy.

And let us not forget our educational system, which we've cited many times here. If there's one area in which the Bush and Reagan administrations have been so long on rhetoric and frighteningly short on results, it is in effecting improvements to our flagging public education system, otherwise known as our future.

When you come down to it, the handwringing over the government's *laissez-faire* policy toward high-tech is like the flag-burning brouhaha. It's Band-Aid chest beating that disguises the harsher realities defining the real problems in U.S. business.

LETTERS TO THE EDITOR

Don't blame APL2

Information systems management should read Tim Stone's Viewpoint column, "Anti-assembler prejudice hinders better computing" [CW, April 23], to understand the prejudice that many programmers face in their organizations. I, too, regard assembler as a perfectly good tool whose value has been overlooked for too long. His experiences with assembler closely parallel my own and the language I specialize in: APL2.

The men and women who use APL2 and its predecessor, APL, can work well together with Cobol programmers and anybody else who wants to work with us, just as APL2 can work well together with any other programming language. Many of us are polyglots and can use other languages as the situation warrants. Indeed, many applications can be developed using more than one language, and certainly APL can be one of the principal languages chosen.

Regrettably, APL is widely regarded as difficult or impossible to read — a "write-only" language. Yet, there is no reason at all why any production APL application should have poor readability, functionality or flexibility. If such problems should occur, the fault is not with the language itself but rather with the programmers who lack demonstrable competence and responsibility, and here I agree with William Blair and his Reader's Platform, "Place blame where it belongs" [CW, May 21]. Real professionals — regardless of the language they choose to use — build their applications with great pride and craftsmanship, and they sincerely care that others are able to read and main-

tain their work.

In the future, if someone should ask me why anyone would want to write a program in APL2, I will reply that it's not only the right tool for the job, it's also the right language for *me*, and, ultimately, that is what matters most of all.

Harold H. Macklin III
Richmond, Va.

A lessor problem

Your editorial comment in "Spring cleaning" [CW, May 21] that "customers have grown appropriately wary of the health and viability of their vendors" may be true, but if so, it reflects their lack of understanding of the leasing company's role in a computer lease transaction.

In the typical leveraged transaction on new equipment, the leasing company is merely a middleman. The customer's financial rights and obligations only flow to and from the senior lender (if any) and the equity investor. So whatever the leasing company's financial health is, or may become, is irrelevant.

The user must be wary about a leasing company's "health and viability" only if it commits to untypical practices such as agreeing to sublease the equipment to a leasing company or accepting a leasing company's indemnity to make the rental payments, for example.

The customer can best protect itself by looking at the leasing company's reputation for time-tested integrity. Analyzing its financial statements, net worth, size, etc. will do little to protect the customer.

There may be practices in the industry that could be improved, but don't complicate the customer/vendor relationship by sug-

gesting a measurement criteria that has little relevance.

Tom C. Martin
President
Computer Financial, Inc.
Hackensack, N.J.

Feeling secure

The almost identical overall scores assigned to the four top mainframe security packages in your Buyers' Scorecard, "ACF2 locks up access control ratings" [CW, June 11], provide even more support for something security professionals have known for a long time. That is, it doesn't matter which package you choose — it's how you implement it that matters. Security packages are merely one of many tools that must be employed in a successful security program.

Too often, management is led to believe that one package will provide substantially more security than another and that once the package of choice is installed, all their security problems will be over. It would be an interesting exercise to develop a metric for an organization's overall security program and then see which packages the successful ones use.

Howard Glaseman
Vice-President
Information Security
Bank of America
San Francisco

The upside of software piracy

JAY ZAGORSKY

More than 50 million personal computers currently sit in U.S. homes and offices. How much of the software on these computers is pirated? Estimates of the value of stolen software range from $170 million to $4 billion per year. However, as the Office of Technology Assessment (OTA) noted when examining piracy, "Existing surveys vary considerably and are increasingly less relevant."

Still, whatever the estimate, piracy directly affects over 11,000 U.S. companies engaged in computer programming and software development. These companies are very concerned about how software piracy is affecting their bottom lines.

The effect on profits is often estimated by multiplying · the number of illegal copies by the sales price. This simple approach greatly overstates the drain on profits because it overlooks a basic economic lesson: The quantity bought is inversely related to the price. In other words, lower prices increase consumer purchases, while higher prices reduce consumer purchases.

Zagorsky is a lecturer of economics at Boston University and an independent software consultant.

Software piracy is not, in fact, a huge revenue drain for the computer industry. Most pirated copies are only used because they are free, and many are not used at all. Little concrete data exists, but in 1985, Adapso estimated that $3.2 billion in software was sold, and an additional $800 million was stolen.

The OTA report noted that survey results of piracy are "subject to bias" because the surveys are conducted for companies or industries that feel harmed. Hence the simple approach of multiplying stolen copies by the sales price is a gross overestimate because only a small fraction of pirated software represents lost sales.

Imagine a small software development company that sells one product. It charges $75 for the program and has sold 75 copies to users.

Unfortunately for this firm, some of the buyers either deliberately give the package away or accidentally have the software stolen from their machines by users who want it for free. This results in a total of 100 people using the software.

The sales manager points out that 25 people have stolen the package, and the firm is losing $75 times 25 copies ($1,875), which represents a 33% loss in revenue. The president delivers a rousing speech about the decline of morals and directs research and development to come up with a method for preventing stolen software from running.

So, R&D comes up with a simple method that is transparent to legitimate users but prevents stolen software from being used. What happens? Using Adapso's estimate, only five users of the pirated copies value the package enough to buy it.

The firm gains just $75 times five ($375) in revenue, a 7% gain. More importantly, very little of this gain translates into profits because the firm must pay for research into stopping software piracy. Besides this direct cost, there is a reduction in future profits because scarce engineering talent has been devoted to piracy control instead of new product development.

Thus, correct estimates of lost revenue should not be based on the total number of stolen copies but rather on stolen copies that resulted in a missed sale. Even this number overestimates bottom-line damage, because pirated software has a *positive* effect on future sales. Pirates who like the product often buy future releases to access more features. Additional sales are also generated when pirates buy tie-in products that enhance the abilities of their illegal copy.

Software currently has a very short life span, with new products constantly pouring into the market. One of the most important factors affecting demand of a new product is how much exposure the old version received. Piracy does not add to current sales, but it does provide exposure that boosts future demand.

This effect on future demand was highlighted recently when two companies — Xyquest, Inc., maker of the Xywrite word processor, and Xtree Corp., maker of the Xtree disk manager — provided a general amnesty program for users who had pirated their software. Users who sent in pirated disks and paid one-third the list price were sent the latest release of the product.

Both companies said they were extremely happy with the programs. Besides additional revenue, the amnesty provided Xyquest and Xtree with a list of potential customers to solicit when future versions are ready. The response to both amnesty programs shows the effect current pirated copies have on future demand.

Ethically, the pirating of software is a social dilemma. Theft is illegal — whether of a television or a word processing package — yet the two types of theft cause dissimilar reactions. Most of us would never consider stealing a $400 TV but copying a $400 word processing package from a friend is somehow different.

Economically, software developers can ignore piracy. Stolen software does not have a large effect on a computer company's profits because first, only a small fraction of illegal software represents lost sales, and second, piracy increases demand for future products.

Joni Levy Liberman

IBM's PS/1 follows PCjr's footsteps into home market

PETER BARTOLIK

I will probably be replacing my dependable but geriatric IBM PCjr within the next few months. However, I will definitely not be swapping it out for the much talked about "Personal System/1" home computer that IBM unveiled last week.

To put things in perspective, with more than half a million units sold, the PCjr does not fit the dismal failure profile to which common lore has assigned it. It was an admittedly limited machine, but at the time, it was affordable — I picked up my basic CPU for a $400 closeout price and for a few hundred more, picked up extra memory, a printer and a red-green-blue monitor that doubles as a television set.

The PCjr also had some nifty

Bartolik is Computerworld's news editor.

design features that retain the loyalty of users who are served by a small but active third-party market industry providing add-ons and enhancements. However, it also had some disturbing incompatibilities with the personal computer standard of the day and just did not have the market drive sufficient to hold goliath IBM's interest.

Now, with lessons learned, IBM is set to again strike for the lion's share of the rapidly growing home market. IBM will stress affordability and lump in a few bundled features such as the Prodigy videotex service it has jointly developed with Sears.

With alternative distribution channels through popular store chains such as Sears, IBM seems primed once again to blindly bulldoze its way into the consumer market, mainly on the strength of its logo.

With prices ranging from $999 to $1,999 ($800 to start with usual discounts), it appears that IBM is once again offering too little, too late to inspire a mass market for its PCs.

It remains unclear at this point exactly what IBM's motivation is. Undoubtedly, such a system will be a minor success among computer initiates; in fact, bundling in Prodigy and shipping as many units as the PCjr just might make the videotex service successful. In light of steep discounts that are likely to be made available to the nation's educational system, there is also a high potential for success putting desktops on school tables.

But as far as a mass, popular market goes, forget it.

Now, with lessons learned,

History repeats itself

If published reports are correct, it seems IBM is doomed to repeat the lessons of history. The systems will be based on the Intel 80286 processor and — echoing the woes of the PCjr — will provide little or no expansion capability as IBM seeks to tap dance between the demands of its vast dealer and value-added reseller network and its own need to avoid cannibalizing PS/2 sales.

The IBM label may just scoop up some sales from the impulse K Mart shopper, but — unfortunately for IBM — buying a PC is not yet akin to the experience of buying a toaster. I would bet that

relatively few home computer shoppers will be willing to plunk down the dollars without first either seeking the advice of an experienced computer user or skimming through one of the PC monthlies.

When the shopper seeks out that advice, he or she will quickly find out something the business world is well aware of: There is no bargain behind the IBM label. For what it would cost to buy the base PS/1 with monochrome monitor and no hard drive, the first-time computer user will find out that a trip to an appliance superstore will bring home essentially the same system, plus a hard drive and color monitor and perhaps even some bundled-in software.

Sweet dreams

So, should IBM give up its dreams of a consumer market? Absolutely not. As sales to large businesses trail off, PC manufacturers have to pay attention to a home market that is projected to grow as fast as 70% per year.

However, brand loyalty is almost a thing of the past in the retail electronics market, and IBM and others heading into this brave new world may find out that an educated consumer is its worst customer.

As the video cassette recorder industry has found, price and features are the name of the game in building market share to sustainable levels. IBM will not play the features game, offering no expansion slots and relying on the dated 286 processor. And it most definitely has never learned how to play the low-cost supplier game.

Those who do a little more homework may find themselves intrigued by a quiet revolution taking place in the mail-order channel. If you've got the nerve, you will find that for what it will cost to buy the best IBM PS/1 with hard drive and color monitor — let's assume a discounted price of $1,700 — you can take delivery of a more robust and powerful, fully configured 386SX system from one of the increasingly respectable mail-order firms that bundle in a one-year, on-site maintenance policy at no extra cost.

With IBM stepping into Sears, you can be sure that Radio Shack, Lechmere, Service Merchandise or your preferred regional electronics store will quickly drop their prices down closer to mail-order levels in order to compete.

And that is probably where I'll plunk down my check.

With OS/2, 1-2-3/G can give you Dynamic Data Exchange. DDE provides live links to other Presentation Manager™ applications for true application integration.

For example, you can include a graph from 1-2-3 in a word processor document. And when the data in your graph changes, the word processor document will automatically be updated as well.

What's more, we've made sure 1-2-3/G complies with IBM Systems Application Architecture. Which not only makes its interface consistent with other PM applications, but also means that once you know how to use 1-2-3/G, you'll be able to learn other PM products more rapidly.

◆OS/2

At this point, you're probably thinking, "Enough, I'm convinced." But just in case, we'd like to bring you up to date on OS/2.

OS/2 1.2 is better than ever. And before long, no one will be without it. It's more than just a graphical environment for the PC. Or an operating system for a handful of power users. It's a high performance, easy to use operating system that provides increased memory addressability and true multitasking.

4 megabytes of memory will give you plenty of room to operate OS/2.

Multitasking in OS/2 lets you get your job done more efficiently by allowing you to work with several applications at once, or even perform several functions at once. Instead of having to end one

Hurry to your local participating IBM authorized dealer. This offer won't last long.

program before retrieving another, you can open as many OS/2 windows as you need, in any size. And not only view them concurrently, but also transfer data among them. You can also do things like print a spreadsheet and run Solver at the same time.

Plus, with a capacity of up to 16Mb of real memory, you can run larger, complex programs concurrently. And reliably. That means your computer is more efficient for you, not just more fun.

If you're worried that a move to OS/2 will mean sacrificing the investment you've made in DOS-based applications, this should put your mind at rest: The DOS compatibility mode in OS/2 allows you to run most of the existing DOS-based programs you already own. Which means the transition to OS/2 involves great gain, without any pain.

And don't think for a minute that we've forgotten about memory. We understand that the biggest obstacle to expanding your system's capabilities is the expense of expanding your memory. That's why we've included 4Mb of high quality, IBM memory in our
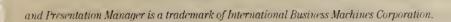
Bonus Pack. If you're a PS/2® user, it's all you need to get up and running with OS/2 and OS/2 applications like 1-2-3/G.

◆OS/2

Now you've heard the whole story. The computer environment of the nineties is here. With an application to drive it right off the shelves. So don't waste any time. Call 1-800-447-4700 for the local participating IBM authorized dealer near you. And pick up the Lotus 1-2-3/G Bonus Pack, with OS/2 and four megabytes of memory, while you have the chance. After all, while the window of opportunity may be brief, IBM and Lotus have opened the door to the future.

Lotus

The Lotus 1-2-3/G Bonus Pack

SYSTEMS & SOFTWARE

COMMENTARY

Rosemary Hamilton

No easy answers

Any user who has committed to a computer-aided software engineering (CASE) strategy recently deserves a round of applause. It could not have been an easy decision.

Many users are faced with critical and costly application development problems, and there are no easy answers for them these days.

First, we have IBM and its AD/Cycle strategy. To date, AD/Cycle consists mainly of existing, unintegrated products and big promises for the future.

Then, we have a host of other vendors, each claiming to deliver AD/Cycle-like solutions today.

Well, one might guess that the decision should be based on how badly a company needs to make the move to CASE. If an IS shop needs it now, then it should go with one of the non-IBM alternatives. If it can afford to wait, then it's worth holding off to see what IBM's AD/Cycle will be one day.

Well, fat chance that it could be so straightforward.

Most industry observers say IBM's AD/Cycle will one day be the de facto CASE standard in the IBM world. So, if you go with a vendor that has products today, will you be cut off from the future standard CASE platform?

To answer that question, today's suppliers of AD/Cycle-like products use the following

Taking a new chargeback tack

Charging users for IS service, despite new twists, is still controversial

BY JOHANNA AMBROSIO
CW STAFF

The love-hate relationship between information systems managers and chargeback systems continues.

However, there are some new twists on the old debates, observers said. IS shops are pricing their services more competitively these days, and there is even talk of establishing rates based on actual work done — per check processed or invoice completed, for example. The new approach is seen as better because it speaks to line and senior management in terms they can understand. Also fueling some renewed interest are the trend toward outsourcing — with IS having to justify its existence — and Computer Associates International, Inc.'s new chargeback package (see story below) announced last week.

However, charging user departments for their IS expenses remains controversial and difficult to implement. "Chargeback is never really satisfying in a practical sense," said Bill Rosser, vice-president of industry service at Gartner Group, Inc. in Stamford, Conn. "IS may feel it takes too much time, effort and money to get the system going, and users may feel that whatever system is used is unfair, and they're unhappy. So no one's really satisfied with it."

Behavior modification

The purpose of chargeback, Rosser added, is to "modify users' behavior to keep costs at a minimum, but it's very difficult

to achieve that goal." Under most chargeback schemes, IS sets prices for different services or components — disk storage and processor time, for example — and then charges those costs back to user departments. There may be incentives in the form of giving discounts for jobs run at night to free up resources during peak periods.

Part of the difficulty is in figuring out which services are subsidized by the IS group, such as disaster recovery and network management, and which are paid for directly by users. Adding to the complexity are distributed systems and trying to determine which part of a network is billable to which users.

Nor are chargeback systems always popular among line managers, who are not used to paying for computer services. Mutual of Omaha Insurance Co. began its chargeback program on a pilot basis in 1986 and fully implemented it two years later. Even now, according to Dave Pepple, executive vice-president and director of computer data services, "we continue to have discussions about this strategy. It's controversial, and it can generate more emotion than logic. Senior management is supportive, but middle and lower management accept it only reluctantly."
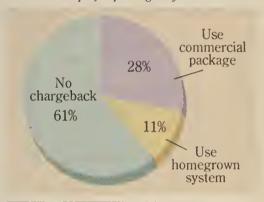
The chargeback scheme has also made the IS department's role "more difficult," Pepple said. "You have to be careful to price the services appropriately, and we have to deal with a lot more customer questions. But now line managers can see both the costs and the benefits of a

particular service. It's made them more intelligent users of MIS, and that's good for the company."

Mutual uses a chargeback system called transfer pricing, which means it prices all of its IS services with a careful eye toward competitive rates. "We price some services above what they cost us, and some services below cost," Pepple said.

Charge!

Although most sites don't use chargeback, those that do prefer packaged systems

- No chargeback 61%
- Use commercial package 28%
- Use homegrown system 11%

Source: Computer Intelligence   CW Chart: Paul Mock

He is not alone in worrying about what outside services charge. "The big issue in chargeback is market-based pricing," said Len Bergstrom, executive vice-president at Real Decisions Corp., a consulting firm in Darien, Conn. IS has to be prepared when an outside service knocks on users' doors, trying to steal users away.

Also, Bergstrom said, IS needs to know what things cost to be able to intelligently evaluate an outsourcing decision. "If you can't measure it, you can't manage it."

Another new twist is something called natural business unit billing, or charging users by actual work done instead of by computer resources. "Everyone talks about it, but few are able to do it. You need very sophisticated chargeback systems and a real understanding of chargeback to be able to pull this off," Bergstrom said.

Second generation

Computer Associates International, Inc. recently took the wraps off its "second-generation" chargeback package.

Roger Craig, product manager, said CA-PMA/Chargeback is more flexible and more sophisticated than the company's JARS software, introduced in 1974. "But to use PMA/Chargeback, you still need JARS to preprocess the information. Where JARS is batch-oriented, CMA is on-line," Craig said.

The new package, which will go into beta testing during the fourth quarter, allows users to comply with changing enterprise structures and can be set up to set rates with different criteria. On-line reporting is accomplished with pull-down menus that adhere to IBM's Common User Access specification.

PMA/Chargeback runs under IBM and Digital Equipment Corp. operating systems, including MVS, VSE, VM and VMS. It also accepts input from different databases, including DB2 and Software AG of North America, Inc.'s Adabas.

"Chargeback has been an issue for many years and is coming to the front again because corporate America is becoming more concerned with costs," Craig said.

JOHANNA AMBROSIO

Introducing the laser printer to buy if price is the first thing you look at,

$1495

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	The New IBM LaserPrinter E	HP LaserJet IIP
Speed	✓ up to 5 ppm	up to 4 ppm
Speed upgrade option	✓ up to 10 ppm	No
Adobe PostScript option	Yes	Yes
Printer emulation	✓ IBM, HP PCL	HP PCL
Std. plotter emulation	✓ Yes	No
Font card slots	✓ 2	1
Std. input paper tray capacity	✓ 200	50
Std. output paper tray capacity	✓ 100	50
Opt. sec. input paper tray capacity	✓ 500	250
Opt. envelope tray capacity	✓ 75	20
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*Dealer prices will vary.

Any way you look at it, the new IBM LaserPrinter E gives you more for your money than any other laser printer in its price range.

For the same price as the HP LaserJet IIP, the IBM LaserPrinter E gives you all the advantages of laser quality output 25% faster, with four times the paper capacity, twice the number of font slots and double the monthly usage volume.

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For example, if you decide you want faster printing, only the LaserPrinter E lets you double its speed.

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The Univac I: First in the field

The age of business computing kicked off at a washing machine factory

BY MITCH BETTS
CW STAFF

The Korean War was over, Dwight Eisenhower was president, McCarthyism was in the news and the first business user of a computer was already gaining a competitive advantage.

It was 1954 when a Univac I mainframe computer was installed at General Electric Co.'s Appliance Park in Louisville, Ky., believed to be the first commercial application of a computer. The "giant brain," as computers were called then, was used for payroll and material control at the factory.

"The material control system was so good that management wouldn't let us go out on a lecture tour. They said this was an advantage we didn't want to let out," recalled John Swearingen, a GE member of the task force that installed, programmed and operated the Univac I.

The Univac I saved the company millions of dollars by tracking and scheduling materials for the assembly line and reducing excess inventory. In the first few months at the washing-machine factory, the system cut inventory of raw materials by $1 million, Swearingen said.

Swearingen and other old-timers of the data processing field reminisced about the Univac I at a recent oral history conference in Washington, D.C., sponsored by the Smithsonian Institution and Unisys Corp. The Univac I was made in Philadelphia by the Eckert-Mauchly division of Remington Rand, Inc.

Du Pont Co., another early user, gained a competitive advantage by using its Univac I for chemical engineering problems, said Donald Marquadt, manager of Du Pont's Quality Management and Technology Center. The computer, which produced very reliable data because of error-checking procedures, was used to study the strength of bundles of fibers under different loads, Marquadt said.

The discussion showed that gaining a competitive advantage with information systems is nothing new. The big difference in 1954 was that the Univac I used 5,400 vacuum tubes, executed a mere 2,000 instructions per second and was programmed in machine code — ones and zeroes.

The conference focused on data processing in the 1950s, but it seemed that speakers touched on many of the same issues affecting IS managers today:

● The systems integrator. It was Arthur Andersen & Co., the accounting and consulting firm, that recommended that GE buy the Univac I rather than a prototype machine from IBM and acted as project coordinator in charge of the installation and training.

At a time when many people were skeptical that computers had any future in business, Leonard Spacek, then-chief executive officer at Arthur Andersen, wanted his firm's Administrative Services Division (now Andersen Consulting) to explore the uses of computers in business accounting.

● The IBM factor. Roddy Osborn, the GE manager who chose Remington Rand's novel

The Univac I *introduced a new era of commercial computing*

Unisys Corporate Archives

computer, took a lot of flak for not buying from trusty IBM, which was the dominant vendor in the tabulating machine market. "It was a courageous decision on his part," Swearingen said.

● Maintenance headaches. A five-man maintenance crew was on hand at all times to pull faulty vacuum tubes and make other repairs. "A six-hour span on that computer without failure was rare," Swearingen said. "The maintenance people may have had the computer more than we had it all week."

● Sales hype vs. reality. Sales representatives said a 10,000-employee weekly payroll could be done in four hours; it actually took 44 hours, Swearingen said. "You just got it done when it was time to start the next one," he said.

Many demonstrations of the new machine were also rigged because the system always seemed to break down at inopportune times, speakers said. Operators learned to keep a good copy of the output tape on top of the printer, ready for use if the live version was headed for failure.

"I have to say the demonstrations were always disasters," Swearingen said. "Demonstrations would make the computer nervous."

CASE veterans say: Look before you leap

BY ROSEMARY HAMILTON
CW STAFF

While some information systems shops are well on their way to a full-blown computer-aided software engineering (CASE) environment, other users are just beginning the journey. To those newcomers, users and analysts alike made this recommendation: Don't hurry to buy anything.

"There is a lot you can do without actually buying a repository," said Howard Fosdick, president of Fosdick Consulting, Inc. in Villa Park, Ill.

In recent interviews, IS managers and analysts said new users are making a big mistake if they look at a CASE implementation as a matter of selecting products. CASE is primarily a management issue requiring cultural and organizational changes before software tools can really be effective, observers said.

"People have to look at this as an information management issue and start implementing steps that will move them into that," said Lionel Brooks, a systems engineer in the information resource management department of New York Life Insurance Co., which is committed to

IBM's AD/Cycle strategy for CASE. "If the corporate culture isn't in place, then you'll end up with big, expensive tools and not know what to do with them."

Emmanuel Ackerman, manager of data administration at Depository Trust Co., said he expects it will take years before his staff has fully adapted to a CASE environment.

"Taking a company through this, to grow into a formal methodology, is something that the experts say takes three to five

C ASE IS PRIMARILY a management issue that requires cultural and organizational changes before software tools can really be effective.

years," Ackerman said. "You don't do it overnight. These are the problems of social evolution. This isn't just automating something."

In 1988, "we had no formal life cycle, no tools, nothing upper CASE," Ackerman said. "We became aware that the [IBM] repository was coming down the road, so we asked, what did we need to do to get ready?"

The staff first evaluated what the goals were and what developers needed to get their jobs done. It then began evaluating published methodologies, including process-driven and data-driven methods. It ended up selecting the information engineering approach supported by Knowledgeware, Inc's. Information Engineering Workbench.

Now, the real work was under way.

"We have specialists on staff who are starting pilot projects with a straw methodology, and they are working some people through it," Ackerman said. "We're seeing how well the users respond to it, how the development people respond, and we're measuring the impact on culture and structure."

Fosdick suggested that users first address the nonproduct issues, such as training and selecting a methodology. "For the first time in 30 years, we are getting away from writing code," he said. "Lots of companies structure teams based on this 30-year history. The organization has to change."

According to Vaughan Merlyn, chairman of CASE Research Corp., IS shops should first define standards for application development to replace the sometimes haphazard approaches used today. This step includes not only a software methodology but a staff structure that better reflects data management and standard development procedures. Users should have a data administrator and, eventually, a repository administrator.

"Most organizations don't have a true data administration function today," Merlyn said. "They have database administrators, who are concerned with relatively technical functions. But a data administrator is the keeper of information who has to be sure the company as a whole is sharing a common view of data."

Buoying a Floating Point

Sun Sparc chips to be used in supercomputer

BY J. A. SAVAGE
CW STAFF

Supercomputer maker FPS Computing, Inc. recently said that it will build a supercomputer using Sun Microsystems, Inc. Scalable Processor Architecture (Sparc) chips and will jointly market the resulting system with Sun.

FPS, also known as Floating Point Systems, has been on a downhill slide for at least three years, totaling losses of about $75 million. During the same period of time, Sun made about $183 million.

Bill Keating, Sun's director of corporate technology marketing, said, "We don't have to do much work. Our sales guys just work with their sales guys."

He added that in the worst possible case — if FPS eventually goes under — Sun would no longer support FPS' supercomputers.

The FPS machine, called the 500EA, will use up to eight Sparc chips in parallel and Sun's version of Unix for math-intensive tasks such as oil exploration modeling and finite element analysis.

FPS also sells a stand-alone Unix computer that uses proprietary reduced instruction set computing processors.

FPS will be responsible for developing software to allow Sun applications to run on its supercomputer.

FPS did not say how fast an eight-processor supercomputer would run, but a four-processor configuration that sold last week runs at 133 million instructions per second, according to the company.

America West Airlines clears 3090 for takeoff

TEMPE, Ariz. — Perhaps it's the free in-flight drinks. Perhaps it's the increased efficiency of employee ownership. Perhaps it's the record of on-time arrivals. Whatever it is, America West Airlines has grown like a sunflower — approximately 100% in each of the last two years — and information services has changed dramatically to keep up.

From 1983, when the airline was established, to 1986, "essentially all information services were either acquired [as services] or used on PCs," said Carl Faulkner, chief of information services. But that was when America West had revenue below $350 million.

When it looked like revenue would grow by 50% in 1987, the company began looking for a turnkey system. There was no such system available, Faulkner said, so America West invested in a Unisys Corp. Model 1100/73 mainframe and attendant software. "It was OK at first," he said, but despite adding two Model 1100/91s and a Model 1100/92 in 1988 and upgrading to a Model 1100/94 last year, "it's beginning to run of gas."

Faulkner said many applications, written in Unisys' Mapper fourth-generation language, no longer accommodated the expanding business, and it soon became apparent that rewrites were in order. With that task facing it, the information systems staff decided to look at other hardware platforms. The IBM 3090 Model 120 platform proved to be less expensive than another Unisys mainframe, Faulkner said, and he found more software for large domestic airlines was available on a 3090 than the Unisys platform.

The 3090 mainframe will host new applications rather than transferring current ones from the Unisys computers.

Jorge Franco Sr., vice-president of the company's new business technology services division and former vice-president of IS, said that the initial application will likely be a DB2 database for employee tracking — a complicated human resources system.

"We need to keep track of the 'currency' of individuals — their expertise and background experience. We encourage people to move across the company, and to do that, we need the most comprehensive database available," he said.

The need for employee tracking is greater at America West than most other airlines because it is employee-owned, and that twist on ownership changes the way things are done. IS can assist departments with a database application.

"In other airlines, there are more rules and regulations," possibly due to their military forebears, Franco said. "We have priorities, either by operational, hardware or software requirements. From there, employees can suggest dramatic changes," he said.

For instance, in development, an employee might find it useful to have a particular development tool. "They do the homework on their own, get specs, sometimes even prices, although we don't encourage [price shopping]," Franco said.

From there, management evaluates the proposal. Franco said that if feasible, the employee's idea will be implemented.

At the same time the company committed to the 3090 mainframe, it also reorganized. Franco's group was spun off as a for-profit business, although it still serves the company's IS department without money changing hands.

The group officially adopted its name in May, and it has yet to have any customers, but its first service will be a cargo management system.

"We'll sell applications to other airlines, ones probably smaller than us because they can't afford their own platform and its attendant infrastructure," Franco said. The application was developed by Cargolux Airlines in Luxembourg and licensed by America West. While currently based on the Unisys platform, the two airlines have agreed to develop software for other computers.

Along with the new mainframe and division is an expansion of activity that, on the surface, appears rather controlled despite its real estate.

For instance, the new computer center, which contains approximately 50,000 sq ft of space, is about two-thirds full, with the rest on reserve for further expansion. While well-staffed, there appears to be no frenetic walkie-talkie communications, just regulation semi-drawl Sun Belt repartee.

Aside from the IBM acquisition, the building is being filled, by and large, with a mishmash of equipment. For instance, a Hewlett-Packard Co. Series 300 Model 950 minicomputer handles just revenue accounting.

That individual systems do not talk to each other is of little concern to Franco. He said there are "periodic interfaces," such as the tape transfers, but that real-time communications are not yet required. "We're gambling on future technology to give us common access," he said.

Looking toward the future, Faulkner said several networking projects are now in the planning stage. For example, America West currently contracts with System One for its reservations and expects to decide next month on whether to bring its reservations in-house.

America West's Franco wants to track human 'currency'

Michael Norton

Securities market goes electronic

Portal, the first electronic market for issuing and trading private market securities, began working on a fault-tolerant **Stratus Computer, Inc.** XA2000 Model 110 system last month.

Operated by the **National Association of Securities Dealers** (NASD), Portal offers a faster, more efficient alternative to the traditional method of handling private placement transactions over the phone or by mail. The system is installed at NASD's computer center in Trumbull, Conn. Subscribers can access Portal to launch issues, check prices in real time, execute buy and sell orders and clear and settle trades in any of the world's major currencies.

Lloyd's of London will also be installing a Stratus system as part of a $3.4 million project to streamline its risk insurance placement, reinsurance and claims processing business. The risk insurer will use an XA2000 Model 120 to provide on-line relational database and communications services for the IBM-managed London Insurance Market Network.

The global network, which by the end of the year will link some 600 underwriters and brokers with third-party processing bureaus participating in Lloyd's insurance market, is anchored by an IBM 3090 Model 600S mainframe at Lloyd's remote data processing center in Chatham, England. In 1991, Lloyd's officials plan to build and run advanced on-line transaction processing applications on the Stratus machine.

Digital Equipment Corp. and **Interactive Systems, Inc.** (ISI) will provide a new financial management system to the chief administrative justice office of the **Massachusetts Trial Courts**, the companies announced recently. The fund accounting and budgetary control system from Lowell, Mass.-based ISI will run on two clustered DEC VAX 6410 systems networked to 50 personal computer users.

Integrated Micro Products, Inc. (IMP) will install three of its Unix-based fault-tolerant computer systems as network support machines at **Sandia National Laboratories** in Albuquerque, N.M. The government lab will receive three IMP XR 655 computers to integrate into a campuswide network of Cray Research, Inc. supercomputers. The IMP systems will run the Ingres Corp. Ingres 6.2 relational database management system and Fortran software.

IMC Systems Group, Inc. announced a worldwide licensing agreement with **J.C. Penney Co.** to provide a multiplatform version of IMC-Plus for the retailer's 12 worldwide import departments. This new version of IMC-Plus allows organizations to integrate the import process on midrange and mainframe computers as well as PCs.

Hamilton

phrases: We intend to be compliant. Our products will be based on it and complement it. We are a preliminary step to it. We will help users migrate to it in the future.

The problem here is most of the vendors don't know exactly what AD/Cycle and its information model will be. So, how can they be sure they can achieve any of the aforementioned claims — without difficulty? Let's not argue the point that they will be able to do it. But what will it involve? We do not know that, plain and simple. If a vendor is promising you help for a future AD/Cycle migration, you can trust that. But no one can promise you it will be easy.

So, what do you do? If you go with a non-IBM product today, you run the risk of having migration problems in the future. But if you need a CASE solution now, waiting around for all the answers is no answer at all.

I think the right course of action was summed up best by Bob Wall, data resource manager at Rite Aid Corp. When asked why he made his decision not to wait for IBM, he said, "You have to make a commitment to do something. You can't sit back and say, 'I made the right decision,' but you can say, 'I made the best decision for my organization at this moment.'"

Wall is working with a third-party software supplier now with the plan to move to IBM's Repository Manager in the future.

AD/Cycle seems so big. It's strategic to IBM, it's an architecture for a critical area of IS, and it's been heavily promoted by IBM. That can be intimidating. It's one thing to buy the wrong software package for a particular operation, but to mess up on an entire application development platform? That decision could scare any user.

But when you think about it, the current CASE dilemma — Should I wait for IBM or go with another vendor's product? — is the same dilemma that has plagued many other market segments. If you think back, you've probably been through it before.

That doesn't lessen the importance of the CASE decision. It's just a reminder that users often have to take the best that is available to them today and then keep their fingers crossed.

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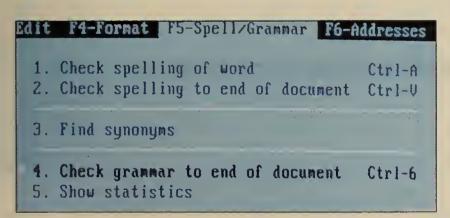
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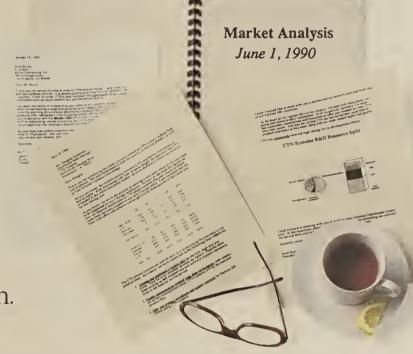
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Market Analysis
June 1, 1990

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SPC SOFTWARE PUBLISHING CORPORATION

Unify announces development tool

BY JEAN S. BOZMAN
CW STAFF

SACRAMENTO, Calif. — Unify Corp. late last month introduced a new application development package for Unix workstations.

Called Accell/Workstation Plus, the new package supports the Motif and Open Look graphical user interfaces and has links to relational database management systems made by Unify, Sybase, Inc., Oracle Systems Corp. and Informix Software, Inc.

A key element of Accell/Workstation Plus is a graphics-based generator that allows programmers to design point-and-click, mouse-driven applications for Unix workstations. The product is intended to compete with Ingres Corp.'s Windows/4GL, a graphically based workstation development tool introduced earlier this year, said Anu Shukla, Unify's director of corporate marketing. Prices for the Unify workstation product start at $10,500.

However, the new product also serves as an enhancement for Unify's Accell/SQL forms generator and fourth-generation language. It is designed to allow users to write an application once, then modify it for use on various computers. "We decided to support [graphical user interfaces] for workstations, for character-based terminals and for PCs, because we believe all three types of machines coexist on Unix networks," Shukla said. She explained that Accell/SQL has been modified over the last few months to support the Motif graphical user interface, so that it could be sold to RISC System/6000 users by IBM salespeople. The Motif feature, priced at $3,200, will be available next month, Shukla said.

SOFT NOTES
Informix aims for Opencase

Informix Software, Inc. announced last week its intent to develop Opencase/Structured Systems Analysis and Design Method, a software product aimed at delivering a distributed application development environment for Unix-based firms in the UK working on computer-aided software engineering technology. It is due out in the UK in the first quarter of 1991.

Using **Recital Corp.'s** existing database and fourth-generation language software, **Champion Business Systems** announced that its accounting software packages, previously only personal computer-based, will soon be available on the Digital Equipment Corp. VAX and AT&T Unix System V environments. They are due out by the third quarter.

Cadre Technologies, Inc. and **Cadence Systems, Inc.** agreed last week to jointly market their codesigned solutions for electronic systems hardware and software manufacturers. Cadre, a computer-aided software/systems engineering tools developer, as well as Cadence, an electronic design automation software manufacturer, will aim to provide a way for engineers within a manufacturing environment to work together throughout the product development stage.

tape drives with Digital Equipment Corp. Q-bus systems.

The dual-height board connects a single-tape drive to any DEC LSI-11 or MicroPDP-11 computer. The device uses standard 3M Co. or similar 300- or 600-ft tape cartridges and provides up to 144M bytes of formatted data storage per cartridge, according to the vendor.

Its 28K-byte data buffer features an average transfer rate of 82K byte/sec. The product's list price is $1,395.
Dilog
1555 S. Sinclair St.
Anaheim, Calif. 92806
(714) 937-5700

Management Graphics, Inc. has unveiled a digital film recorder that captures 2,000- and 4,000-line 35mm images at a throughput rate of more than 120 per hour.

The Solitaire-8XP was designed with quality color compensation tables and red-enhanced phosphor to provide high-quality color range, balance and uniformity.

Pricing for a unit without a camera head is $49,000.
MGI
1401 E. 79th St.
Minneapolis, Minn. 55425
(612) 854-1220

NEW PRODUCTS — SOFTWARE

System software

Kimtrax, a transportation management system for corporate trucking fleets, has been introduced by Kimberly-Clark Computer Services, Inc.

The product runs on IBM mainframes and provides the following on-line applications: order-entry management; freight planning, rating and billing; performance reporting; dispatching; trip management; driver and equipment management; electronic data interchange; and vehicle maintenance.

The product's list price starts at $150,000. Remote services are available at various prices, depending on the number of resources used.
Kimberly-Clark
P.O. Box 619130
DFW Airport Station
Dallas, Texas 75261
(214) 830-6800

Raxco Software, Inc. has introduced two products that were designed for Digital Equipment Corp. VAX/VMS systems.

The Perfectdisk I/O Optimization System makes files and free space contiguous and intelligently determines its run frequency by watching for file fragmenting and then defragmenting/optimizing in one pass, the vendor said.

Raxmanager can track resource utilization, thus enabling systems managers to identify system bottlenecks, implement project accounting and charge users for resource use.

Perfectdisk is priced from $1,050 to $8,750, and Raxmanager costs between $3,300 and $18,750, depending on VAX configuration.
Raxco
2440 Research Blvd.
Rockville, Md. 20850
(301) 258-2620

Russell Information Sciences, Inc. has introduced a menu-driven operating environment for Digital Equipment Corp. VAX system managers and users.

The Xecutive Office System protects VMS operating systems from user interference and includes a menu interface that allows applications, utilities or custom Digital Language Command procedures to be added to a user's menu in less than one minute, the vendor said.

A manager's menu enables system managers to perform routine tasks, and a menu compiler provides multilevel nested menus and English syntax to add and tailor functions. The software also allows managers to change security codes.

The product is available for DEC VAXs or Vaxstations running the VMS operating system. Pricing ranges from $795 to $34,995, depending on CPU size.
Russell.
25201 Paseo De Alicia
Laguna Hills, Calif. 92653
(714) 768-5000

Development tools

Cognos has announced an application development software package for Digital Equipment Corp. VAX users.

Powerhouse Version 6.0 includes a user interface that enables developers to customize screens to resemble DEC's All-In-1 and other graphical interfaces. Pricing ranges from $5,000 to $230,000, depending on configuration.
Cognos
67 S. Bedford St.
Burlington, Mass. 01803
(800) 426-4667

Neuron Data, Inc. has announced a new release of its Nexpert Object expert system tool.

Nexpert Object Version 2.0 supports multivalue and list data types. The tool runs on more than 30 platforms.

The product is scheduled to begin shipping this month for $5,000 to $8,000 for desktop and midrange versions. Pricing for mainframe models ranges from $50,000 to $80,000.
Neuron
444 High St.
Palo Alto, Calif. 94301
(415) 321-4488

Ready Systems Corp. has introduced the RT-Ada/88K, a real-time operating system designed to support 88K-byte Ada applications on embedded Motorola, Inc. 88000 reduced instruction set computing microprocessors.

The product comprises Ready's Ada Real-Time Executive multitasking kernel and Cardtools, a computer-aided real-time engineering tool set that provides task-level timing and simulation of complex applications during the design phase.

RT-Ada/88K is scheduled to be available next month. Pricing starts at $18,000.
Ready Systems
P.O. Box 60217
Sunnyvale, Calif. 94086
(800) 228-1249

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   70. Mining/Construction/Petroleum/Refining/Agric.
   80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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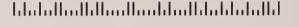
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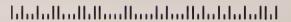
Not too little, but too late

OS/2 "Lite" — it was a good idea once upon a time and, for a small group of users, may well fill a need. First announced as a design goal last November, by the time IBM is ready to ship it — probably later this year — it is likely to be dismissed as too little, too late [CW, June 25].

From all appearances, Microsoft has already won the battle for the desktop with its recent delivery of Windows 3.0.

Backed-up support lines and waves of complaints crashing down on Compuserve notwithstanding, it appears that Microsoft's $10 million-plus marketing campaign for Windows 3.0 has already paid off in spades.

Users are excited — really excited. Several formerly happy users of Quarterdeck Office Systems' Desqview environment told me they have switched to Windows 3.0, and they'll never go back.

Sheldon Laube, national director of advanced technology for Price Waterhouse in New York, used to run OS/2 1.2 on his personal computer. Not anymore. He ditched it for Windows 3.0.

Asked about OS/2 Lite, sev-

Multiprocessors still wait for software

ANALYSIS

BY RICHARD PASTORE
CW STAFF

They're not personal computers. They're not minis. They're mutant machines — multiprocessor systems with power rivaling low-end minicomputers but priced and sized in the tradition of high-end workstations. Observers call these hybrids cheap and flexible but say sales will not take off until more multiprocessor-capable software becomes available.

The draw for these systems is their CPU expandability and competitive prices vs. traditional minicomputers. "People who are interested are those that know they're going to grow and don't want to purchase another machine down the road," said Michael Stallo, president of At-

> ## WE'RE ALWAYS
> interested in more power, but the software's the whole driving thing,"
>
> **WILLIAM HARRISON**
> **HARTFORD INSURANCE GROUP**

lanta-based minicomputer reseller Application Computer Systems.

Publishing house Edgell Communications purchased a dual-processor Wyse Technology 9000I after reaching the limits of its NCR Corp. Tower Series 650 mini. "The Wyse machine gave

us the best bang for the buck," said Lori Fraser, telemarketing director at the Cleveland-based company. Though her Wyse system supports 17 users now, "the department can expand to 100 people, and we can still use the same machine," she said.

While the NCR 650 took 10 minutes to perform a sales record search, the 9000I does the job in four seconds, Fraser noted. The same performance improvement could have been achieved by buying a nonexpandable NCR Tower Series 800 mini — but for $30,000 more than the Wyse cost, she said.

Such success stories are rare in the multiprocessor market because there have not been many systems sold. Sales of Compaq Computer Corp.'s much-hyped dual-processor Systempro and Zenith Data Systems' Z-1000 have been less than spectacular, according to observers. A main reason is the lack of software capable of supporting multiprocessing.

"That's the major hold here," said Frank Michnoff, an analyst at Meta Group, Inc. in Westport, Conn. Currently, the only nonproprietary operating system that can handle multiprocessing is Unix, and that requires purchase of special add-on programs.

The lack of software is discouraging interest from The Hartford Insurance Group in Hartford, Conn. "We're always interested in more power, but the software is the whole driving

thing," said William Harrison, senior vice-president.

Novell, Inc. and Banyan Systems, Inc. are expected to ship multiprocessor-capable network operating systems early next year, according to Michnoff. "Then we'll see a tremendous amount of growth in these systems, starting in the nine-to-12 month time frame," he said.

PC vendors are not waiting on that day, however. Both AT&T and Advanced Logic Research, Inc. joined the hybrid bunch last month with announcements at Comdex/Spring '90 in Atlanta.

In addition, industry sources said IBM will announce its own dual-processor box later this year. A little larger than IBM's Personal System/2 Model 80, the system will incorporate Intel Corp.'s 80386 and I486 microprocessors and will rival the low-end Application System/400 mini in performance.

Once the systems and software come into their own, users

will find numerous functions for which the technology is ideally suited, analysts said. For example, the machines will address peer-to-peer processing, distributed processing and work group computing, said George Thompson, an analyst at Datapro Research Corp. in Delran, N.J.

"If the work group concept is to take off as most people expect, you'll need this kind of technology," Thompson said.

Analysts also noted that multiprocessor systems are most advantageous for businesses moving up from the PC level rather than down from the mini level. Multiprocessor systems share the same architecture with their PC forebears and run much of the same software. Thus, PC users can preserve most of their PC software investment.

Unless they are running under Unix, mini users may have to rewrite proprietary-based applications to port them to a multiprocessor system.

High-powered hybrids
Multiprocessor systems from PC vendors

Company	System	Processor type	Number of processors	Price
ALR	Multiaccess Series 3000	486	1 to 6	$16,000 to $27,000 (1 to 2 CPUs)
AT&T	Star server E	486	1 to 4	$27,500 to $39,900 (1 CPU)
Compaq	Systempro	386 (486 to come)	1 to 2	$16,000 to $26,000 (1 CPU)
Wyse	9000I	386 or 486	1 to 6	$85,000 (3 386 CPUs)
Zenith	Z-1000	386 or 486	2 to 6	$18,500 to $45,500 (2 to 6 386 CPUs)

CW Chart: Doreen Dahle

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Navy office rids itself of paper albatross

New PC-based information system will sop up an ocean of job-announcement documentation

BY RICHARD PASTORE
CW STAFF

WASHINGTON, D.C. — If the U.S. Navy personnel office stacked up a year's worth of job vacancy announcements, it could erect a paper tower that would dwarf the nearby Washington Monument by a factor of six.

To reduce these monumental paper proportions and the associated handling costs, the Consolidated Civilian Personnel Office (CCPO) in Crystal City, Va., this week will begin deploying a personal computer-based employment information system.

In a typical year, 4,000 Navy civilian job announcements proliferate into 110,000 pounds of paper that must be distributed to several Navy and other U.S. Department of Defense sites. The new system will eliminate much of that by allowing applicants to access on-line job descriptions and print hard copies of only those positions that interest them.

The cost savings, which will amount to $3,000 per year for photocopying alone, will yield a return on investment in less than two years, according to Karen Buck, CCPO director of technology enhancement.

When it first started planning the automated personnel stations six months ago, the CCPO decided that a lot of applicants for its clerical and administrative positions would be afraid of computer technology. "Giving them an opportunity to walk in and touch the screen for the information they wanted seemed the most user-friendly way to do it," said Diane Cath, a computer systems analyst who helped design the system.

Touch-screen technology also gave the programmers more creative leeway, Buck noted. "We saw other systems that were more limited because they were tied to a specific keyboard," she said. "With the touch screen, we could use our imagination to get anything we wanted up on the screen."

Cath and her fellow programmers designed a multiple-layer menu system that allows users to access jobs by category and grade level. The positions are divided into clerical, engineering, computer-related and senior executive groupings. Details on specific positions include location, salary range and duties.

The hardware setup consists of an Everex Systems, Inc. PC based on Intel Corp.'s 80286 chip. An NEC Technologies, Inc. Multisync color display serves as the touch screen, and a Hewlett-Packard Co. Laserjet IIP prints the hard copies. The touch-screen technology itself comes from Interactive Images, Inc.'s Easel software.

Seven stations will be operational at four Navy sites by Octo-

ber, according to Buck. But it will take another two years before the separate stations are tied into the department's Novell, Inc. Netware-based network. At that point, department managers will be able to directly send vacancy announcements into the system. Currently, CCPO personnel have to key in the new positions and deliver seven different floppy disks to seven different stations.

The touch-screen stations are just the first phase of a two-year employment automation project. The CCPO said it expects to have networks powered by eight to 12 Unix-based servers that can handle up to 1,000 users. The networks will run new applications such as an on-line personnel policies manual, up-to-date training course

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>
> DIANE CATH
> CONSOLIDATED CIVILIAN PERSONNEL OFFICE

schedules and an executive information system (EIS). Some applications, such as the EIS, will be based on touch-screen technology but not all, Buck said.

The networks will eventually supplant the CCPO's Data General Corp. MV/20000 and MV/10000 minicomputers, which currently run data tracking applications. All the new applications will go on the network, "and the Data General will eventually go away," Buck said.

Groupware start-up plans to get it Together

BY JOHANNA AMBROSIO
CW STAFF

NEW YORK — Yet another vendor aspires to the list of groupware groupies, but the finished product from start-up Coordination Technology, Inc. is a year away.

Coordination Technology took the wraps off its first product last week — an environment manager for work groups akin to Hewlett-Packard Co.'s New Wave. However, the software, called Together, will not be available until July 1991; it has not even entered beta testing.

The company defended its decision to announce Together be-

fore it is really, well, together. "Groupware is hot right now, and we wanted to throw our hat into the ring," said Ron Quinn, vice-president of sales and marketing. "Groupware has a six- to nine-month sales cycle, and we can start working to identify customers."

All together now

When it ships, Together is expected to provide four types of functions: aids for organizing people, work groups and activities; personal support tools through an encapsulation process that allows Together to work with any OS/2 application; work-flow processing to trans-

mit messages and assignments and carry out tasks; and a Microsoft Corp./Sybase, Inc. SQL Server portion that will monitor all work and allow users to generate reports. The company said it will port to other SQL servers as customers request it, and that there are no current plans for a Lotus Development Corp. Datalens driver. Also provided are features such as group calendaring and scheduling.

The package will carry a "starter kit" price of $9,995, which includes software for one server and 12 workstations, installation, documentation, training, two days of consulting and one year of telephone support and upgrades. Additional server and workstation software is priced separately.

The company could still have a rough road ahead. Not only will the software be ready long after other so-called groupware pack-

ages hit the streets, but the fact that it runs under the still evolving OS/2 could also hurt sales. Coordination Technology will sell Together through a direct sales force and through value-added resellers and systems integrators.

The first beta-test user, Andersen Consulting in New York, is scheduled to install Together next month. Two others, the State of New York's General Services Administration in Albany and Discover Card in Chicago, will begin their pilot programs this fall.

Looking at Windows

Also on the agenda may be a DOS version to run under Microsoft's Windows on the client with the server portion still running under OS/2 for performance reasons. Together was originally developed for DOS, but Quinn said the operating system does

not provide enough horsepower for all of Together's functions.

Also, in its current format, Together requires at least 6M bytes of random-access memory when combined with OS/2 and what the company called a "reasonable complement" of applications, a 60M-byte hard drive and a server with 12M bytes of memory.

"We're playing with DOS now to see if we can get enough of our package to run to make it commercially viable," Quinn said.

Coordination Technology, based in Trumbull, Conn., was founded in 1986 and is backed by investor Eli S. Jacobs.

Bill Micklin, a principal at Alex Brown & Sons, Inc. in Fishkill, N.Y., said, "I think the product incorporates a strong knowledge of how we work. But the real story won't be told until people begin to use it."

Sharing a strong family resemblance can be a curse.

We don't know about your family, but members of the Microsoft® word processing family share some rather attractive characteristics.

Simply put, they work alike. Every Word program comes with a complete set of high-end features that are not only consistently implemented, but consistently easy to use. So by stand-ardizing with us, your users are assured of outstanding performance on every platform. We've even developed an OS/2 version, which is due to ship shortly.

Furthermore, you won't find any sibling rivalries within the Word family. They read and write to one another, as well as applications from other software companies. Which makes file

Or a blessing.

Not just another pretty face

Micrografx's Charisma offers multiple business graphics functionality

BY PATRICIA KEEFE
CW STAFF

NEW YORK — Micrografx, Inc. recently introduced Charisma, a Microsoft Corp. Windows 3.0-compatible business graphics package that the company claimed will do away with the need to run multiple graphics products.

Micrografx Chairman J. Paul Grayson claimed that DOS users in large companies today typically need two to three graphics packages to provide the same functionality that Charisma provides.

Charisma got a thumbs-up from Windows advocate Arthur Block, a vice-president at Manufacturers Hanover Trust Co. in New York, for just that reason. He said he will probably standardize on Charisma to avoid the trauma of having to support many different and incompatible file formats from a variety of other graphics applications.

"It's the right platform for anyone producing big power charts," added Ross Gates, an accountant at the audit division of Arthur Andersen & Co.

What Grayson called the "biggest announcement" in Micrografx's eight-year history coincides with its initial public offering and is targeted at the $200 million business and presentation graphics market — specifically Software Publishing, Inc.'s Harvard Graphics and Lotus Development Corp.'s Freelance, which have an estimated $60 million

Micrografx' Charisma *integrates a variety of graphical components*

and $50 million in revenues, respectively.

Using a common template approach, Charisma integrates various graphical components, including word charts, business charts, desktop presentations, illustrations and over 2,200 free clip art images, into one product.

Grayson claimed that Charisma provides four times as much clip art as its closest competitor.

In addition to a customizable, intuitive interface, the $495 package directly imports data and graphics from Harvard Graphics, Microsoft's Excel and Lotus' 1-2-3. Charisma ships with a batch print utility and an enhanced Dynamic Data Exchange link for Excel. Dynamic Data Exchange also allows Charisma to be used as a graphics engine for other applications.

Templates automate the creation of word charts by defining paragraph margins, indents, alignment, bullets and fonts for multiple levels.

Micrografx claimed that Charisma is the only Windows application that supports 35 Bitstream and six URW outline fonts with on-the-fly rasterization so that any font can be arbitrarily scaled to any point size and rotated to any angle. It includes printer-specific fonts as well.

Business charts can be created in all the common types: area, bar, column, line, pie, scatter, table and combination as well as unlimited two-dimensional and three-dimensional variations. Custom chart features can be stored in the visual chart folder for later use.

Illustration features include Bezier curve drawings and editing, gradient fills, over 16 million colors, color mixing and predefined custom color palettes, as well as an extensive drawing tool set.

For desktop presentations, Charisma includes Slideshow, an electronic slide utility with more than 30 fade and wipe effects, over 20 predefined master pages, over 20 predefined word chart templates and more than 80 predefined business charts.

Charisma replaces Graph+ and is available as a $99 upgrade for Graph+ users.

PC Expo introductions

In the battle of the big spring trade shows, Comdex/Spring '90 won the contest for most personal computer and portable system debuts. PC Expo, however, fought back with a battalion of peripherals and related software introductions late last month.

Adobe Systems, Inc. announced a version of its Adobe Type Manager for DOS machines running Microsoft Corp. Windows 3.0 applications. The software eliminates the jagged-edge, bit-mapped fonts that non-Postscript PC users once had to contend with. The $99 package is slated for September shipment. Adobe also announced three new sets of fonts for IBM PCs and compatibles. The font packs will retail for $99 to $198 and are expected to ship this month.

Another Postscript-related product that debuted at the show is a bridge that connects Apple Computer, Inc. Macintoshes and IBM PCs to the same printer. Extended Systems' Bridgeport connects to the Mac via Apple's Appletalk interface. The PCs patch in via the serial and parallel ports. Bridgeport costs $495.

Small computer systems interface (SCSI) users can access up to seven different SCSI devices from a single host adapter with Micro Design International, Inc.'s SCSI Express. It includes diagnostic utilities and separate device drivers for each peripheral and supports an array of storage devices and operating systems. It costs from $300 to $500, depending on the operating system used.

Xerox Imaging Systems in Sunnyvale, Calif., said it is shipping a new version of its Gray F/X 8-bit image processing software for IBM PCs and compatibles. The $495 package adds enhanced masking capabilities, improved cursor and icon displays, real-time control of brightness and contrast and an expanded filter set for greater control of visual effects.

Phoenix Technologies Ltd. began shipping its BIOS update for IBM PCs and compatibles. This latest release features a setup interface with pop-up menus, on-line help and a diagnostic tool to provide users with system identification information.

ATI Technologies, Inc. announced a pair of 8514/A-compatible graphics boards, said to be up to 10 times faster than the IBM standard. The boards, which support a resolution of 1,024 by 768 pixels, range in price from $699 to $1,299 and will ship next month.

ATI also unveiled a $249 IBM Video Graphics Array 16-bit adapter card. Available now, the card supports resolutions of both 800 by 600 pixels and 640 by 400 pixels. ATI also unwrapped a 9.6K bit/sec. external modem with V.32 modulation, scheduled to ship next month for $799.

RICHARD PASTORE

Keefe

eral users summed up their response with a "Big deal!"

This is hardly good news for Microsoft's buddies over at IBM, who can't say the same for the $18 million they have allegedly spent promoting OS/2. But you have to give IBM credit: They listened to users last fall who said that OS/2 was too memory-intensive and that it was too expensive to upgrade all that hardware.

IBM, along with Microsoft, unveiled what was positioned as a 3M-byte OS/2 at Comdex/Fall '89 [CW, Nov. 21]. Both vendors then promised to synchronize their OS/2 plans and products, as well as to work toward a 2M-byte plateau.

Just a week later, Microsoft began backing away from a 2M-byte OS/2. Peter Neupert, Microsoft's senior general manager for OS/2, said that while he was trying to "squeeze OS/2 down, right now we cannot commit to a 2M-byte version" [CW, Nov. 27].

A less-than-enthusiastic Neupert also suggested an OS/2 under 3M bytes might be severely limited in function. Based on demonstrations in IBM's booth two weeks ago at PC Expo, he was wrong.

The operating system demonstrated by IBM was much smaller and much faster than the current 3M-byte OS/2. IBM also insisted that it not only will feature the same capabilities but will provide better printer support.

What's not to like? Nothing, actually, but that's not the point. Microsoft's agenda is.

It's true that Microsoft helped to develop OS/2 Lite. But Chairman Bill Gates hasn't spent years on Windows to allow it to be trampled by a gawky, adolescent operating system that still has trouble making friends. OS/2 has a lot of growing up to do.

There are those developers and analysts who theorize that Microsoft broke its fall '89 deal with IBM to confine Windows to the Intel 80286 and to leave the 80386 strictly to OS/2. IBM, these people speculate, may be looking to derail Windows with OS/2 Lite.

However, Windows 3.0 looks and feels like OS/2 and, some said, has a better user interface. It's also cheaper, has more applications written for it and has succeeded in turning the development tide its way.

That is exactly why OS/2 Lite is unlikely to appeal to anyone but the tiny minority that is running OS/2 1.2.

Some developers have suggested that OS/2 Lite might hold appeal for users interested in running OS/2 on their massive installed bases of 286s. The problem is that these people are already moving to Windows and the 386 platform.

If delivery of OS/2 Lite had preceded Windows 3.0, we might be talking a different story here.

It's worth noting that Microsoft Vice-President Paul Maritz took a shot at positioning OS/2 1.2 as a 2M-byte operating system. (So why all the talk at Comdex/Fall about 1.2 being a 3M-byte system and how we needed to "squeeze" it down?)

Maritz claimed 1.2 can boot up in 2M bytes and even run an application but added that since the performance is less than acceptable under those circumstances, Microsoft never suggests that anyone try it. Oh. So in other words, it's a 3M-byte system.

Then there's the fact that OS/2 Lite would spare users the need to go down a two-stage migration path — DOS to Windows to OS/2.

However, Microsoft's "Porthole" migration kit reportedly solves the issue of migrating Windows applications to OS/2.
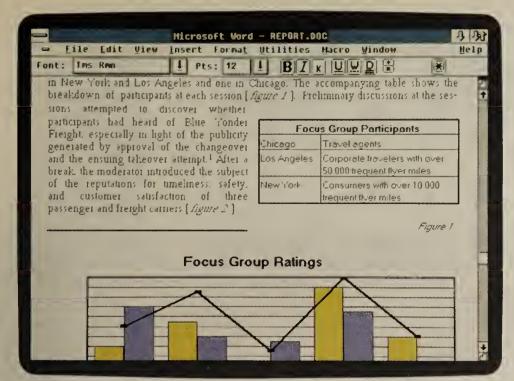
And now that Microsoft is firmly in control of future OS/2 development, sources said one of the key design goals for OS/2 2.0 is to make sure it is completely compatible with Windows. That way, users can migrate up and down the technology highway to their heart's content.

Besides, a lot of corporate managers are holding out for a 32-bit version of OS/2, and while they wait — and wait they will — they are slowly rolling over their installed base of 286-based machines to the 386 standard.
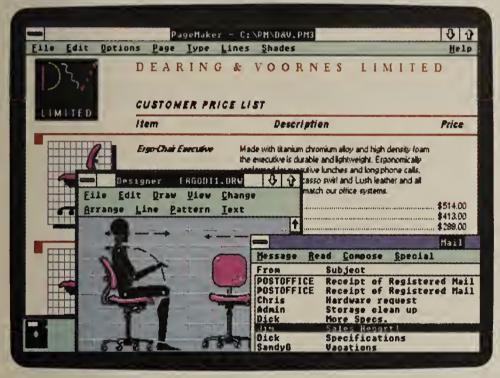
So, it would seem that Maritz was right when he suggested that the benefits to be gained from OS/2 Lite do not warrant a separate release. All the evidence so far indicates that users are perfectly happy to accept a Windows diversion until OS/2 2.0 comes out, possibly mid-1991.

In the meantime, OS/2 Lite might become just another good IBM idea that never gets to see the light of day.
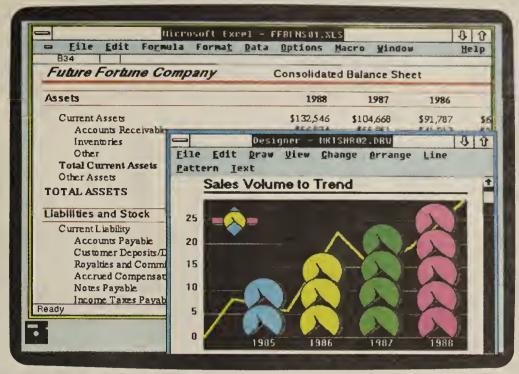
The Windows in the secretarial pool.

Finance's Windows.

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The Windows that the V.P. doesn't know he has.

We'll do each of the Windows in your office for $50.

If your business has any version of Microsoft® Windows™ or any Windows applications, this upgrade offer will mean big savings. And a big boost to productivity.

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NEW PRODUCTS

Software applications packages

On The Go Software has announced Version 1.1 of its Expense It expense management system.

The program uses a menu-driven database for receipt entry, and context-sensitive Help screens guide the user through the program. Features include a currency calculator for converting foreign currency to U.S. dollars, a subtotal calculator for calculating itemized expenses and pop-up windows that appear during receipt entry.

Expense It is priced at $130.
On The Go Software
Suite 613
330 Washington St.
Marina Del Rey, Calif. 90292
(213) 578-9595

Macintosh products

Interleaf, Inc. has announced a new version of Interleaf Publisher for the Apple Computer, Inc. Macintosh that includes a gray-scale image editor.

The gray-scale editor allows users to edit photographs and other scanned-in images. Users are reportedly able to pixel edit, zoom, crop and adjust the contrast of photographs. Images may also be rotated, stretched and combined with text or graphic elements. A cloning function enables users to reproduce portions of an image in other parts of an image, the vendor said.

The product costs $995.
Interleaf
10 Canal Park
Cambridge, Mass. 02141
(617) 577-9800

Data storage

Racet Computes Ltd., a division of Kobe Steel in Japan, has introduced an installation software program that enables users of Apple Computer, Inc. Macintosh systems and IBM Personal Computers or compatibles to install its Cosmos 600 removable, erasable optical storage subsystem in 10 minutes.

PCMS-EZ is bundled with the Cosmos 600, which the vendor is now including in its enhanced Macsimum Storage series of Macintosh-compatible optical disc drives for $4,795 and in its PC-maximum Storage series of optical and hard drives for IBM PCs and compatibles for $5,195.
Racet
3150 E. Birch St.
Brea, Calif. 92621
(714) 579-1725

Iomega Corp. has announced a line of 44M-byte drives that feature access times of less than 22 msec.

The B44 single drive and B244 dual drive use barium ferrite storage media to deliver 44.5M and 89M bytes of on-line storage, respectively. The drives can be used on IBM Personal Computer ATs, Personal System/2s or networks running Novell, Inc.'s Netware 286 or SFT. Versions are also available for Apple Computer, Inc. Macintosh systems and portables.

Pricing ranges from $1,400 to $2,799, depending on type of model. The company has also introduced an OS/2 driver for Microsoft Corp.'s Windows 3.0 upgrade that lists for $99.
Iomega
1821 W. 4000 South
Roy, Utah 84067
(801) 778-1000

Software utilities

Reference Software International has announced a grammar and style checker for Microsoft Corp.'s Windows.

Grammatik Windows checks documents for errors in grammar, style, usage, punctuation and spelling; identifies writing errors and suggests improvements; and allows users to make corrections immediately or mark errors to be corrected at a later time. Grammatik Windows requires Windows 286 2.11, 386 2.11 or 3.0 and costs $99.
Reference Software
330 Townsend St.
San Francisco, Calif. 94107
(415) 541-0222

An upgrade to the Sitback memory-resident backup utility for personal computers and local-area networks has been announced by Sitback Technologies, Inc.

Sitback Version 3.0 requires 14K bytes of memory and performs complete and incremental backups in the background of stand-alone PCs or networks. The product can back up recently created files during computer idle times, at preset times or in the background while a PC is being used. The list price is $99.
Sitback
9290 Bond
Overland Park, Kan. 66214
(913) 894-0808

Interactive Images, Inc. has announced an upgrade to its personal computer-based application template product for creating graphical user interfaces to IBM's Professional Office System (Profs).

Easeloffice 2.0 allows users in DOS environments to interact with Profs functions such as Profs Note and Calendar by using a mouse instead of a keyboard. It incorporates Interactive's Easel/DOS development tool kit and communicates with Profs via an IBM or Digital Communications Associates, Inc. Irmaboard or a High-Level Language Application Program Interface driver.

A site license costs $25,000.
Interactive Images
600 W. Cummings Park
Woburn, Mass. 01801
(617) 938-8440

Easeloffice can *interact with Profs*

Systems

Swan Technologies has announced a 25-MHz Intel Corp. 80386-based computer system.

The 386/25 uses integrated drive technology, which moves key electronics components from the drive controller to the hard drive itself. It includes 1M byte of 80 nsec dynamic random-access memory. Other features include a 1.2M- or 1.44M-byte floppy drive, two serial ports and one parallel port and eight expansion slots.

The product lists at $1,795.
Swan
3075 Research Drive
State College, Pa. 16801
(814) 238-1820

The LP-286L, a low-end IBM Personal Computer AT-compatible laptop computer from Fora, Inc., includes 1M byte of random-access memory, which can be expanded to 5M-, 20M- or 40M-byte hard disk drives.

It features a 3½-in. 1.44M-byte floppy disk drive, a parallel printer port and an IBM Color Graphics Adapter backlit supertwist LCD screen. A 20M-byte hard drive version costs $3,495, and a 40M-byte hard drive unit sells for $3,595.
Fora
3081 N. First St.
San Jose, Calif. 95134
(408) 944-0393

Two Intel Corp. I486-based personal computers have been announced by AGI Computer, Inc.

The 4000A desktop system and 4100A upright system feature 25-MHz zero wait-state operation and a 64K- or 256K-byte static random-access memory cache. The systems offer 4M bytes of RAM, which can be upgraded to 8M bytes on a motherboard and to 16M bytes by using an additional 8M-byte proprietary memory board, the vendor said.

Models 4000A and 4100A were scheduled to begin shipping on June 30 for respective list prices of $7,395 and $7,995.
AGI
48460 Kato Road
Fremont, Calif. 94538
(415) 683-2800

NETWORKING

COMMENTARY
Joanie M. Wexler

Un-Sodering token-ring

In college, we used to call them the "old reliables." These were the folks who always wound up raising their hands when no one else would volunteer to clean up after the horse in the Homecoming parade, collect door-to-door for cystic fibrosis or return the empty keg the day after the party. In short, a few did the dirty work for many.

Robert Madge could end up in the annals of token-ring history for being an old reliable. As the only vendor to date with the moxie to challenge Olof Soderblom's token-ring patent in court, the president of UK-based Madge Networks, Inc. could wind up saving the whole token-ring industry a bundle — particularly in the Fiber Distributed Data Interface (FDDI) arena — if he comes out a winner.

In a long line of vendors that have for years paid patent royalties to Soderblom because "it just wasn't cost-effective to fight" and have passed those costs on to their customers, Madge has gone out on a limb to challenge the validity of the patent in both U.S. and UK courts. This month, he was deemed the victor in the UK by the High Court of the Royal Courts of Justice. The U.S. case is still pending.

The limb Madge is out on is considered brittle by Soderblom, who offered Madge a token-ring license that he refused in order to try to have the patent declared invalid. Soderblom has told the press that if Madge loses in court, he will close the kitchen on his licensing offer.

But it's not even clear that it's legal for Soderblom to selectively license his technology, according to Madge's lawyers. Soderblom's words also contradict the transcript from the UK case, which cites his British attorney as assuring the judge that Soderblom will indeed continue to offer a license to Madge.

Many may say Madge is using poor business judgment, that he is risking the livelihood of his 70 employees if Soderblom is able to withdraw his licensing offer. He's also currently losing

National net seeks just the fax

PC-based system gathers financial data from services' fax machines

BY JOANIE M. WEXLER
CW STAFF

When you are supporting a facsimile network of more than 2,100 machines, you need something a little more sophisticated than "Sneakernet" for dumping accounting data into your host.

This was the conclusion of Hotelecopy, a Miami-based organization that supports fax service in hotels nationwide.

The company, which went public last fall, was founded in 1986 by an electrical contractor who lost a multimillion-dollar bid because his hotel had no way for him to send proposal revisions quickly.

Because the company makes its money on service fees collected from client hotels rendering the service for guests, Hotelecopy's data center is primarily concerned with polling the myriad Ricoh Corp. Model 130 machines it has installed in lodging sites across the country and dumping the mounds of transaction data into a general accounting package on a server.

Take it to the bank

A bank of nine IBM-compatible personal computers in the Miami headquarters polls the fax machines as much as three times per day, depending on the sites' general usage levels. To allow the PCs to do that, the company wrote a software application program that, when coupled with a Gammafax PC card from Gammalink Corp., allows the PCs to function as Model 130s and interrogate the internal memory of remote machines.

The data is automatically downloaded to a 386-based, 25-MHz Intel Corp. server that runs the Xenix System V operating system, according to Chris McMorrow, director of MIS. Another Intel server runs the corporate accounting package and database, which stores the master list of fax phone numbers to be polled.

Until about a year and a half ago, the polled data collected on the PCs' hard disks was transferred to floppy disks and hand-carried to the Xenix server. This proved unreliable and too slow for machines polling high-activity sites. Once a fax machine's memory is full, it begins overwriting data, and the company lost track of transactions and revenue, McMorrow said.

All-flavor mix

Integrating the Unix-flavored servers with the DOS-based PCs has been accommodated by a piece of software called Coconet from Atlantix Corp. (see story this page), which allows the PC users to issue DOS commands to access the Xenix servers.

Hotelecopy sold the hard drives on the polling PCs, McMorrow said, adding that for hard disk storage, the PC users use portions of the 380M-byte hard drive on the server.

The company's data center is currently adjusting to its new credit-card-operated fax service, which is spilling into post offices in the Northeast. The service, which allows the public to charge their fax transmissions using major credit cards, is the result of a bid that the company won from the U.S. Postal Service about a year ago.

Hotelecopy also recently won the bid for the remaining four regions of the country and is in the process of actually building its own fax product in conjunction with Touchfax in Kansas City, Mo.

The post office side of Hotelecopy's business requires the polling PCs to link via modems to the PC-based fax machines and download their activity logs to the Miami headquarters, where they are put in a file format and transmitted via modem to a credit-card clearinghouse responsible for collecting the receivables.

Network glue

Coconet, a software connectivity product from Boca Raton, Fla.-based Atlantix Corp. that allows Unix machines based on Intel Corp. 80386 chips to act as an integrated server for DOS and OS/2 clients, is solving interoperability problems for at least two users.

In a facsimile-polling application used by Hotelecopy, which runs Xenix servers and DOS clients, Coconet resides under Xenix's Xnet networking protocol to allow Xenix to communicate with the other operating system.

"It's completely transparent," noted Hotelecopy MIS director Chris McMorrow. "Our PC users, who access portions of the hard drive on the server, don't want to know how they access 'C:'; they just want to use their DOS commands."

"You only have to know two things: how to turn it on and how to turn it off," said Eliot Levin, publisher of the *Southern Beverage Journal*, which replaced its Novell, Inc. Netware network with Coconet.

Levin noted he was having compatibility problems between IBM Personal Computer clones that may have been independent of Novell, though when he replaced the clones with Unisys Corp. 386-based workstations, he still had problems printing. In the two years he has been using Coconet, he said, he has never made a service call.

JOANIE M. WEXLER

Offices seen as LANmark for networking pioneers

BY JIM NASH
CW STAFF

Not particularly known for their pioneering spirit, office workers have led the computer networking charge, and now they are tired.

A study of local-area networking's future indicated that office environments will account for an ever-smaller percentage of the worldwide personal computer network installations during the next three years.

Maryann Bader, president of Bader Associates in Mountain View, Calif., and author of the study, predicted that LANs in offices will account for 57% of all LANs worldwide. Bader estimated that office LANs made up 74% of all networks in 1988. The study was published by Electronic Trends Publications

in Saratoga, Calif.

"Offices are closer to the saturation point than other segments as far as installations go," Bader said. "They still have a long way to go in reaching saturation, but they are further along than the others."

In real terms, Bader said, LAN growth in offices will flatten, while growth in medical/scientific and manufacturing fields will more than double by 1993. She explained that the same cost savings that propelled offices to the LAN forefront will also propel growth in other business segments.

Medical/scientific LAN installations are expected to rise from 6% in 1988 to 13% in 1993. In the same period, systems on the factory floor will grow by five percentage points to 9% worldwide, Bader said.

Medical networks connecting
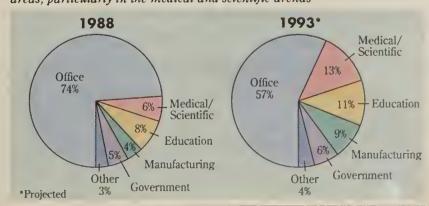
hospitals to doctors, pharmacies and other hospitals, already are building momentum. Bader cited the Kaiser Permanente Group in California, which has linked several hospitals electronically.

The greatest growth in manufacturing, she said, will occur in factories with revenues of $5 million to $50 million. "There are so many businesses at this level that aren't computerized," Bader said. She said these firms were likely to find networking solutions less expensive than minicomputer alternatives.

Shifting tides
Once dominated by office applications, LAN use will show gains in most areas, particularly in the medical and scientific arenas

1988
Office 74%
Medical/Scientific 6%
Education 8%
Manufacturing 4%
Other 3%
Government 5%

1993*
Office 57%
Medical/Scientific 13%
Education 11%
Manufacturing 9%
Government 6%
Other 4%

*Projected

Source: Electronic Trends Publications   CW Chart: Paul Mock

My network in marketing won't share

Now what?

The latest directive from senior management is a doozy. Marketing and manufacturing must now share applications. As for all those different PCs and systems in place, management is "confident you can meet that challenge without incurring significant additional capital expense."

Now what?

For many corporate managers, the answer to that question is 3Com® 3+Open™ systems. 3+Open systems start with LAN Manager, co-developed by 3Com and Microsoft, and include the most extensive range of connectivity and electronic mail products.

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with the network in manufacturing.

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3Com

We network more types of systems
to more types of systems.™

Tandem, Systems Center make Net/Master plans

BY ELISABETH HORWITT
CW STAFF

Tandem Computers, Inc. and Systems Center, Inc. last week moved to give Tandem users the same network management capabilities that Systems Center's Net/Master provides for IBM environments.

Under Tandem and Systems Center's joint development plans, Tandem's existing Distributed Systems Management will provide the basic architecture for gathering information about what is happening on Tandem networks. Meanwhile, Systems Center's recently acquired Net/Master will "provide a more powerful way of dealing with and analyzing those events," often with little or no human intervention, said Michael Katz, Tandem's corporate marketing manager.

It takes two
The two vendors have already been working together for almost two years to develop a network management system based on the core Net/Master architecture, which will "take advantage of Tandem functionality such as fault tolerance and linear expandability," or the ability to add power to a system by adding microprocessors, Katz said. Also in the works is a Tandem version of the Net/Master application development tool, Network

Control Language, he added. No time frame has been given for product availability.

Net/Master will be able to communicate in peer fashion with the original IBM version of the product, said John Robinson, executive vice-president at Systems Center. As a result, he added, Tandem and IBM hosts will be able to either cooperatively or alternately perform centralized management operations. A "pipeline between the two Net/Master products" will enable Tandem and IBM hosts to jointly locate problems that extend across their respective domains, Robinson said.

Systems Center currently offers Net/Master on IBM hosts and Fujitsu Ltd. operating systems and plans to implement its products on other systems in the future, Robinson said.

Tandem will continue to support its SNAview product as a way for its systems to send network management information to IBM's Netview, Katz said. However, "we will never achieve with Netview the level of integration we will have with Net/Master" through the joint development effort with Systems Center, he added. "Also, I think Netview isn't really an open system."

Systems Center recently acquired Software Developments International, the original developer of Net/Master.

Military FDDI net goes commercial

BY GARY H. ANTHES
CW STAFF

MCLEAN, Va. — Unisys Corp. recently announced the operational start-up of a new fiber-optic network to carry intelligence data for the Strategic Air Command (SAC).

Unisys Defense Systems said it built the network mostly from commercially available components in conformance with industry connectivity standards, and it said that Timeplex, Inc., a Unisys subsidiary, will offer the technology to other government and commercial users.

The SAC Intelligence Network (Sacintnet), based at SAC headquarters in Omaha, ties together intelligence systems associated with warnings, crisis management, operations planning, force employment and force modernization planning. SAC controls the majority of the nation's nuclear firepower through U.S. Air Force bombers and intercontinental ballistic missiles.

Sacintnet is the most complex Fiber Distributed Data Interface (FDDI) network in existence, said Lorraine Martin, program manager at Unisys Defense Systems.

An Air Force spokesman said that the new network will significantly increase capacity (100M bit/sec.), reliability and security.

He also said that the replacement of old, proprietary communications protocols with standard protocols such as Transmission Control Protocol/Internet Protocol and the Standard Network Management Protocol will enhance connectivity, allowing the Air Force network to interface with a broader variety of computers and other networks.

The Sacintnet backbone is based on two counter-rotating fiber-optic cables so that if a component fails, data can make a U-turn and still get to its intended destination. The cables have re-

FDDI

dundant connections to key network components, which include IBM mainframe and Digital Equipment Corp. VAX hosts, various servers, 16 smart concentrators and 30 routers. It has six times the capacity of SAC's previous network, which was built around proprietary standards, Martin said.

The backbone is supported by three central servers running software developed by Unisys. The Network Control Center monitors and controls all network devices. The Network Security Server monitors and controls security, and a Shared Network Server handles com-

mon user services such as printing, mail, files and graphics.

Some 300 intelligence workstations will attach to the backbone via local-area network-FDDI gateways or Internet protocol routers. Ethernet or other FDDI LANs can also attach via the routers, and the backbone also connects to the Defense Data Network through a gateway.

Network software is based on technology approved by the Defense Intelligence Agency for "system high" operation, in which all users must be cleared to the level needed to access all data. An enhanced version, part of the $10 million, eight-year project, will be installed next year offering "compartmented mode" operation, in which users with different clearances can access just those files for which they are cleared. Sacintnet employs a variety of security measures, including thumbprint identification for key system managers.

Charles Clark, Timeplex's technical manager for FDDI products, said Timeplex is selling the components on which Sacintnet is based to commercial users and to other federal agencies. He added that existing commercial users include automotive firms and financial institutions, but he would not name them.

Wexler
FROM PAGE 43

some business because of Soderblom's threats not to license.

But the refreshing thing is that Robert Madge is not fighting the patent because he's cheap. He's doing it because — in his own words — he doesn't like to be bullied. He seems to truly believe that the claims in Soderblom's patent, which are described by many as overly broad, do not apply to the products he and his token-ring colleagues are building today. And he's sick of nobody ever bothering to go to court to find out.

His business judgment may not be so clouded. He's the major shareholder in his company; he has no venture capitalists to please. In addition, he says that there are many other Soderblom licensees that could serve as sales channels for bringing his products to market.

Madge's official position is that Soderblom's original patent was based on a master/slave principle, unlike today's peer-to-peer networks. Because I'm not an engineer or a lawyer, I'm

in no position to judge Madge to be correct or not correct. In fact, he could be dead wrong.

However, it's gratifying in today's hard-nosed business world — ruled by the omnipotent bottom line — to see someone just go out and do something because he believes in it.

IBM didn't do it. Hewlett-Packard didn't do it. Fifty-two other vendors didn't do it. Madge Networks *is* doing it.

I haven't talked to all 54 patent licensees, but I have talked to more than half a dozen about this issue. Not one of them has said that they're paying royalties because they believe that the patent covers their technology. They've all said it was cheaper to pay the piper than to rack up the expenses of slogging through litigation.

What amounts to good business decisions for them, then, has perhaps become a form of industry blackmail — if the Soderblom patent really isn't applicable.

That's an "if" that the UK court has decided in Madge's favor. That same week, the U.S. Patent and Trademark Office issued an initial decision to reject

and suspend the broad claims added to the Soderblom patent in 1985, based on a re-examination requested by an anonymous third party. The suspension will be in effect until Soderblom files a response and another decision is issued.

The patent issue has reared its head again in recent months because of the emergence of FDDI, the 100M bit/sec. token-ring local-area network. Soderblom has upped the ante to FDDI vendors to license fees reaching $275 per adapter card — costs that get tacked onto the already hefty price of fiber-optic components.

Those in the FDDI community are already exploring ways to lower the prices of getting the high data rates to the desktop, such as using alternative media. Knocking a couple hundred off adapter card prices probably wouldn't hurt, either.

Several FDDI vendors' lawyers have spent quite a bit of time schmoozing about what to do with the patent issue. By the time they get around to realizing that fighting the patent might finally make business sense, though, it's likely Madge will have already done the dirty work for them.

Wexler is a *Computerworld* senior writer.

User firms may be able to try ISDN one line at a time

BY JOANIE M. WEXLER
CW STAFF

SCHAUMBURG, Ill. — Cost-conscious Illinois businesses will be able to tiptoe into ISDN a line at a time starting next month, if tariffs filed recently by the state's local Bell operating company are approved by the Illinois Commerce Commission.

The filing would allow users to purchase Integrated Services Digital Network (ISDN) lines without having to bundle them with Centrex central office switching services, currently a requirement. The existing packaged approach is one impediment to ISDN for users who have not found Centrex to be an economical alternative to switching calls through an on-premises private branch exchange.
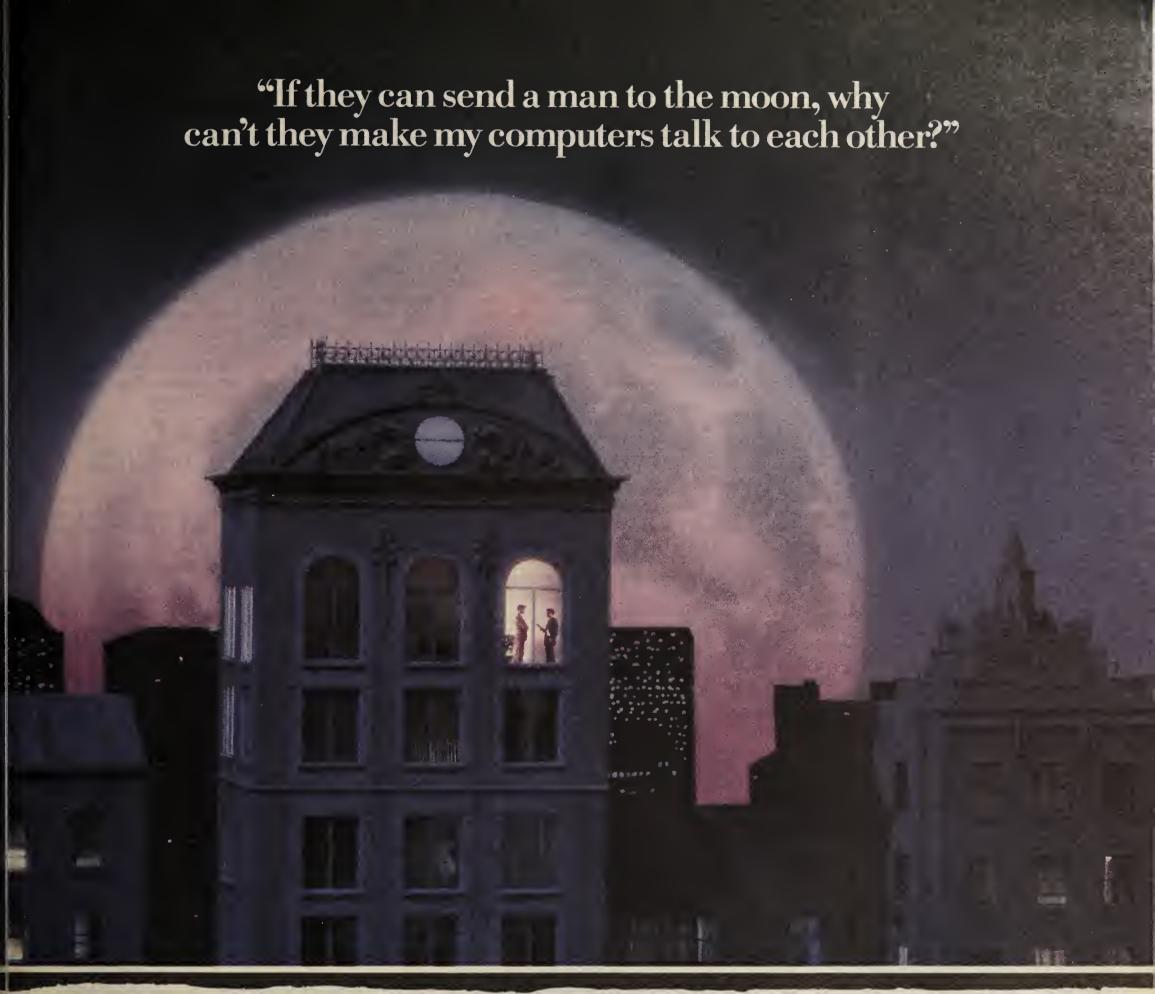
The other Ameritech companies reportedly plan to file similar ISDN tariffs in early 1991, giving users the ability to dabble in the technology at near-business-telephone rates.

For example, according to the Illinois Bell tariff, a customer in Chicago who orders one ISDN line to simultaneously handle

voice and data calls will pay $22.66 per month and a one-time installation charge of $94.50. This compares with a monthly fee of $18.78 and one-time charge of $148.50 for the two Touch-Tone business telephone lines otherwise required to provide similar service.

ISDN, an emerging technology for a ubiquitous, digital switched public network, comes in two flavors — Basic Rate and Primary Rate — for combining a mix of voice, video and high-speed data over one line. Illinois Bell's tariff covers Basic Rate services, which provide two 64K bit/sec. channels for voice or data and one 16K bit/sec. channel for signaling.

Pricing is one of several stumbling blocks to ISDN, according to Steve Sazegari, an analyst at market research firm Dataquest, Inc. in San Jose, Calif., who said that ISDN must be priced "at a cost comparable to or cheaper than plain old telephone service" to appeal to users. He cited users running separate phone lines for facsimile and voice as key candidates for line-at-a-time ISDN.

"If they can send a man to the moon, why can't they make my computers talk to each other?"

IBM Has Developed An Answer To The Looming Question Of Multivendor Networking.

As if getting people to work together weren't hard enough, you're faced with a somewhat more complex task.

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And IBM network management software will also help you better manage everything you've managed to network.

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No matter how high their aspirations.

For more information, call your IBM Marketing Representative.

IBM

3Com moves toward other systems

BY JIM NASH
CW STAFF

SANTA CLARA, Calif. — 3Com Corp. replaced word with deed recently, introducing a software product line that aims to strip away proprietary network hurdles.

The company is delivering on year-old promises to bridge its own networking products with virtually any major networking system with a minimum of cumbersome extra steps.

This month alone, 3Com has introduced software that will link its DOS-based 3+Open operating system with Transmission Control Protocol/Internet Protocol, Novell, Inc.'s Internet Packet Exchange and Xerox Corp.'s Xerox Network System protocols. It also has demonstrated a menu service using Microsoft Corp.'s Windows and a naming service that executives said will feature easy migration to X.500. All are scheduled for delivery by this fall.

Industry observers said the announcements are proof that 3Com no longer covets Novell's massive installed base. But it also means that information systems managers with Novell-dominated networks are less likely to phase out smaller 3Com local-area networks simply for the sake of connectivity.

Growing pressure from LAN administrators for true network interoperability has been noted by 3Com's competitors as well. Darrell Miller, an executive vice-president at Novell, said such customer pressure is finally re-shaping proprietary policies. Microsoft networking general manager Mike Murray said Microsoft no longer seeks to "annihilate" its competitors. Murray held up as evidence Microsoft's cooperation with 3Com on its 3+Open Maxess SNA Gateway software.

Good news

Steve Wigginton, project manager of Sacramento, Calif.-based U.S. Computer Services Corp., an MIS service provider for cable television firms, said 3Com's connectivity announcements are encouraging. Wigginton said he counts himself among the IS professionals cited by Miller who are calling for integration over innovation.

"Up till now," Wigginton said, administrators have "had some communication capabilities, but they have created little communication clusters. We need to join them all and not have to worry about what systems each cluster has."

Wigginton said he has ordered 3+Open for Macintosh — a previously announced software package that was formally endorsed two weeks ago by Apple Computer, Inc. That endorsement "makes me feel a little more comfortable" about his purchase, he said. The software will connect U.S. Computer's 20 Macs to an existing PC LAN. The LAN connects to a Tandem Computers, Inc. host.

3Com's Maxess SNA Gateway "simplifies the job of getting people access to the mainframe," said Rick Reed, a developer at Aion Corp., a Palo Alto, Calif.-based software maker. "This basically gives us a seamless environment."

Aion, which installed the software earlier this year, connects to its IBM mainframe primarily over its 3Com LAN. Reed said he is waiting for an OS/2 version of the software.

Analyst Craig Burton, principal at Clarke Burton Corp. in Salt Lake City, said he was surprised to discover that with 3+Open for Netware, accessing drives through Windows 3.0 will involve identical point-and-click commands on both systems.

Neither Burton nor other analysts contacted were surprised by the introductions themselves, however. The products have been publically discussed, and, although none have been delivered, they are looked at as promises made good.

"It's not brand-new. It's not unexpected. But it's significant nonetheless," said Alice Bradie, an analyst at Hambrecht & Quist, Inc. in New York, about the combined announcements.

Bradie said it is important for LAN companies, and 3Com in particular, to make good on ubiquitous promises of interoperability. These announcements, she said, indicate 3Com is serious about the issue.

GEIS enacts new strategy for E-mail

BY MICHAEL FITZGERALD
CW STAFF

General Electric Information Services (GEIS) announced a new electronic mail local-area network connector late last month as part of an E-mail strategy it has dubbed Businessconnect.

GEIS said it expects that Businessconnect will allow E-mail end users to transparently contact their counterparts at any other site via a keystroke or two, possibly before the end of the year.

The new product, called LAN Connector for MHS, will initially be compatible with DaVinci Systems's E-Mail/MHS and Transend Corp.'s CompletE-Mail/MHS. The decision to package GEIS E-Mail services within Businessconnect does not affect pricing.

GEIS, which already supports a number of proprietary E-Mail systems, including IBM's Professional Office System (Profs) and Wang Laboratories, Inc.'s Wangoffice, said it figures that it is about "75% to 80%" of the way to being transparent, said Ed Isaacs, product manager at Businessconnect.

Stretching out

GEIS has targeted Businessconnect at current users of various pieces of the package as well as companies that want more flexibility than their current E-Mail systems provide. Unlike E-Mail services such as MCI Communications Corp.'s MCI Mail — which targets individuals — GEIS is a private E-Mail service provider that sells exclusively to corporations and associations.

Businessconnect consists of Quik-comm, with its PC Mailbox front end; Quiknews; X.400 interfaces to Western Union Corp.'s Easylink, MCI Mail and AT&T Mail; interconnections to IBM Profs, DISOSS, Application System/400s and System/3Xs, Digital Equipment Corp.'s All-In-1 and VMSmail, Wang's Wangoffice, CC:Mail, Inc.'s CC:Mail LAN, and 3Com Corp.'s 3+Mail LAN.

NEW PRODUCTS

Electronic mail

Esoft, Inc. has announced an automated store-and-forward electronic mail server designed for users who need wide-area access to shared data.

Tims allows an unattended personal computer to automatically contact a central bulletin board server via a dial-up modem to perform message and file-transfer tasks. A user only needs simple key words such as Get and Send and a file description to operate the system from a remote site, the vendor said.

A single phone-line unit costs $189, and a system that supports as many as 32 lines sells for $259.
Esoft
15200 E. Girard Ave.
Aurora, Colo. 80014
(303) 699-6565

Joiner Associates, Inc. has announced an electronic mail gateway that provides messaging capabilities between Digital Equipment Corp. VAX minicomputers and Apple Computer, Inc. Macintosh systems.

Jmail-Inbox is a VAX-resident, software-only device that enables users of Tops Corp.'s In-box Plus and VMS-mail to transparently exchange mail. It operates on any VAX system running the VMS operating system and with on-line mass storage for VMSmail, files in transit and log files.

Licenses sell for $9,800 per VAX system. Software support and maintenance updates cost $1,500 per VAX system.
Joiner Associates
3800 Regent St.
Madison, Wis. 53705
(608) 238-8637

Front ends/ Multiplexers

Digital Link Corp. has introduced the DL551X-RD, a T1 CSU that automatically transmits an alarm report when T1 problems occur on a network.

The remote dial-out device can send alarm reports via a smart modem from a preprogrammed phone number stored in the CSU or directly output reports to a local printer. It can be programmed to monitor and evaluate T1 network performance characteristics, and more than 12 transmission levels can be alarmed for maintenance reports.

The DL551X-RD has a list price of $2,795.
Digital Link
252 Humboldt Court
Sunnyvale, Calif. 94089
(408) 745-6200

Digital Link's *CSU automatically transmits alarm reports*

Nokia Data Communications Corp. has announced the Nokiamux family of communications network processors.

The products, originally developed for use by European Postal Telephone and Telegraph authorities, offer from four to 128 asynchronous ports with two to eight synchronous composite links. Network management functions are secured with three password levels, and a menu-driven interface enables users to interactively configure a network.

Prices range from $2,040 for a Nokiamux 104 with four ports and two links to $10,750 for a Nokiamux 120 with 32 ports and two links.
Nokia
2300 Tall Pines Drive
Largo, Fla. 34641
(813) 535-6999

Host-to-host

X.Com 6.2, an upgrade of Spectrum Concepts, Inc.'s communications software package, was designed to improve the ability of Stratus Computer, Inc. and IBM System/88 computers to share data with other systems.

The software offers IBM Advanced Program-to-Program Communications/LU6.2 links for environments such as IBM mainframes, System/34, 36 and 38s, DOS and OS/2 personal computers and local-area networks.

License fees for Stratus and System/88 versions range from $6,000 to $16,000. Versions for other environments cost between $495 and $39,000.
Spectrum
150 Broadway
New York, N.Y. 10038
(212) 766-4400

Micro-to-host

United Networks, Inc. has announced its Grandslam line of IBM 3270 adapter boards designed to provide workstation-to-mainframe communication.

The boards connect to IBM 3174, 3274 or 3276 controllers or IBM 4300 series printer adapters via coaxial or twisted-pair wiring. A line of Grandslam IBM Video Graphics Array adapters combine 3270 connectivity with 1,024- by 768-pixel resolution graphics.

Pricing ranges from $445 to $795, depending on model. A Grandslam 3270 CUT-mode software package costs $295.
United Networks
2178 Paragon Drive
San Jose, Calif. 95131
(408) 436-2800

Local-area networking hardware

O'Neill Communications, Inc. has announced the second generation of its local-area wireless network.

The product uses O'Neill's radio technology, which was designed for personal computer networking applications, to provide peripheral sharing, electronic mail and file-transfer capabilities without the need for facility wiring. The system runs at a maximum speed of 19.2K bit/sec. and permits third-party software to run on it.

The network attaches to the RS-232 serial port of an IBM PC, compatible or peripheral. It costs $298 per unit.
O' Neill Communications
100 Thanet Circle
Princeton, N.J. 08540
(609) 924-1095

EXECUTIVE TRACK

Donald L. Cerullo has been elected a vice-president at **United States Tobacco Co.** based in Greenwich, Conn. He is responsible for management and operation of all computerized systems throughout the company and its subsidiaries.

Cerullo reports to Senior Vice-President Walter A. Wuchiski.

Cerullo has been director of MIS since 1983. He joined the company in 1980 as a senior systems analyst. Prior to that, he was a systems manager at Pitney Bowes, Inc. in Stamford, Conn.

A resident of Stamford, Cerullo possesses an MBA from the University of New Haven.

Wayne Sadin has been named vice-president and manager of research and development at **Datalink Systems, Inc.**, a South Bend, Ind.-based technical products subsidiary of Mellon Bank, NA.

Sadin was most recently vice-president of administration, which included responsibility for information systems, at Murray Financial Co. in Dallas.

He joined Murray in 1981 and has held a variety of positions there. Before joining Murray, he worked at Axios, Inc. in New York and Bleyer Industries in Boston.

Sadin holds a bachelor's degree in business administration and computer science from Boston University and a master's degree in MIS from the University of Texas at Austin.

Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor, Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

Include IS in the prescription

Pharmaceutical firms hope large-scale systems injection will speed new drugs to market

SPECIAL INDUSTRY FEATURE

BY ALICE H. GREENE
SPECIAL TO CW

Pharmaceutical companies are hoping that investments in information systems will help them to speed up the painfully slow process of bringing patent drugs to market. But it will take a lot more than money to create the kinds of systems required to streamline the lengthy paper chain from development labs to the desks of Federal Drug Administration reviewers.

Among other things, says Dr. Lawrence Brenkus, consultant at the health industries division of Arthur D. Little, Inc. in Cambridge, Mass., it will take more of a commitment to large-scale innovation than most companies have demonstrated thus far. Mostly, he says, "they patch what they have and add homegrown modifications."

By and large, drug development and approval still take place in an environment of data fragmentation and paper stacking. Right now, it takes an average of 12 years for a new patent medication to be developed, tested and approved by the FDA for release to the market. Once, that might have been considered an acceptable interval, but now, the industry is facing a combination of circumstances that make this leisurely pace untenable.

First of all, there is the specter of profit shrinkage because of patent expiration. Patents can account for more than 50% of a pharmaceutical company's profits, and patents on 80% of the top 50 drugs will expire by 1995, making these products fair game for the open market.

Stepped-up competition from the generic drug companies is also helping to exacerbate still another problem: pricing pressures. Congress, health maintenance organizations, retail drug chains and U.S. employers that are helping to foot health-care costs are calling for curbs on prices of patent drugs, which have increased by more than 125% in the past decade.

Most industry experts agree that the best chance for successful resolution of these problems lies with more effective use of IS throughout the development and testing process.

Getting a drug product to market involves a complex series of steps that "consume the drug's patent life and impact time-to-market," says Joel Dobbs, director of information services at Glaxo, Inc. in Research Triangle Park, N.C. Initial basic research and discovery leads to preclinical animal testing, a process that can take up to six years. The next four to seven years are consumed by clinical testing performed by physicians in the field.

Throughout the testing phases, statistical analysis is performed on selected data. Then, as the process steps toward a new drug application (NDA) submission to the FDA, evidence of the drug's efficacy and safety is documented using a word processing or electronic publishing system.

This requires pulling together a varied collection of information, including summaries of experiments, arguments, statistical analysis results, clinical trial data and supporting references. At time of submission, manufacturers provide the FDA with not only this summary documentation but also

Dobbs *says Glaxo has streamlined its submission process with a stand-alone imaging system that uses 5¼-in. optical discs*

Joe Rodriguez

CIO: More myth than reality in education

BY ALAN J. RYAN
CW STAFF

Just when you thought it was safe to reprint those business cards, a new study has found the title of Chief Information Officer to be much less prevalent than the number of officials functioning in that role in universities and other educational institutions.

The survey, conducted by Boulder, Colo.-based Cause — the Association for the Management of Information Technology in Higher Education — was mailed to more than 400 institutions and had a response rate of 70%.

Early results of the poll showed that although the trade and business press have hailed the CIO function as an important position in businesses and educational institutions, there is no telling whether or not the CIO designation is here to stay. Only one-third of the institutions responding to the survey recognize their information systems chief as a CIO.

However, those who do hold the CIO designation in educational institutions often receive higher pay than their IS chief counterparts, the survey found. In fact, according to respondents, salary-range averages varied by as much as $20,000 annually under some categories. Individual salaries ranged from lows of $30,000 to $39,999 to highs of more than $120,000.

The average salary range for employees functioning as CIO, but not holding the title, was approximately $57,000, while the actual CIOs earned an average of nearly $70,000.

Categories that were surveyed in the poll consisted of system offices, research universities, doctorate-granting institutions, comprehensive universities, liberal arts colleges, two-year institutions and professional schools.

The entire survey, one of four segments of an annual Cause Institution Database survey, queried Cause members about campus demographics and organization as well as about the use of new technologies.

Reports of the study are available to any office or department of a Cause member institution.

Prescription

statistical analyses and raw data.

The approvals phase usually lasts about 30 months but has been known to drag on for as long as 10 years.

Time savings anywhere in this process could have significant monetary meaning for a manufacturer. Blockbuster drug products can yield sales of as much as half a million dollars per day, and a month or two could easily make the difference between market leader and me-too status.

The development or acquisition of systems for these critical development phases is a sensitive subject for IS executives in the industry. Many refuse to discuss their systems efforts in these areas, claiming that to do

Image captures attention

Pharmaceutical makers are starting to look toward imaging systems for improved document management

Number of image management systems sold to pharmaceutical manufacturers
*Projected

Year	Number
1989	56
1990*	123
1991*	243
1992*	366
1993*	563

Source: BIS CAP International, Inc.   CW Chart: Doreen Dahle

so would compromise a competitive advantage. In some instances, that may be true. However, conversations with other drug makers and consultants in this field suggest that there are more people claiming to have research and development systems capable of producing competitive advantage than there are actual systems.

"The single most mission-critical technology," Brenkus says, "is fully integrated information management systems." However, he says, very few companies have actually done much in that area. Most manufacturers have information systems in place and find it wrenching to move from an existing environment to a new one, he explains.

"Making do" is not entirely a matter of choice, says Jerry Paulis, executive director at Ciba-Geigy Corp.'s pharmaceuticals division in Summit, N.J. "We can attempt to shorten the cycle by implementing technology," he says. "We can only do it where it is appropriate, and there are external factors that make it difficult."

That is not to say that there is no upgrading going on. Ciba-Geigy is beginning to use image

processing to store scanned live clinical patient data. It also began working with IBM in a partner relationship last year on electronic NDA submissions and on providing access to clinical data for all reviewers via a document management system.

Although Paulis says it is too early to discuss results, he does say that "there will be a significant impact on our overall process, and it is going to change the way we collect and manage data and the way we work with the FDA reviewers." Among the benefits Paulis says he hopes will materialize from the use of imaging are a reduction in paper handling, speedier data entry and improved data integrity.

Electronic submission of NDAs has so far been tested by only a handful of companies for low-priority approvals, although many in the industry are considering a move in this direction.

Ciba-Geigy is one of seven firms that has received approval for a new drug application using computer-assisted new drug application (CANDA) techniques. Five years ago, when the arthritis drug Voltaren was in the initial FDA approval stage, Ciba-Geigy moved its data from a database management system that mirrored its paper submission into another database environment supported by on-line display formats designed for the FDA reviewers.

The company then trained the reviewers and its own personnel in the use of the system. Whether electronic filing actually speeds up the process no one really knows, but the firm speculates that it shaved six months off the approval process. The predominant reason: The new display formats allowed the reviewers to pose their data inquiries on-line and re-analyze data.

Still in the labs

On the whole, electronic submission remains relatively unexplored territory. "Most, if not all, CANDA submissions to date have been experimental and partial, like ours," says Polly Moore, director of information resources at Genentech, Inc. in San Francisco.

Genentech, maker of Activase, a clot-dissolving drug, develops protein pharmaceuticals using new recombinant DNA techniques. The company recently provided the FDA with a partial electronic submission that consisted of statistical data generated from SAS Institute, Inc.'s SAS package and document text prepared in Wordperfect Corp.'s Wordperfect, both of which were used by the assigned FDA reviewers.

Each manufacturer handles electronic submission differently. Some allow the FDA to log into their on-site databases, others send disks of data, and some use electronic mail.

Inefficient as this profusion of techniques may be, it is likely to persist. As Lawrence Rothman, manager of IBM's Pharmaceutical Industry Center, notes, "FDA is public, and they cannot indicate what systems companies must use nor impose standards, which is very difficult for the entire industry."

Lack of standards is not the only impediment to full-scale electronic new drug application submission. The sheer mass and diversity of information contained in filings is simply too much for most systems, according to Dobbs.

"The technology has yet to catch up to the industry's need for a publishing tool that generates a quality document, one that has good cross-referencing and indexing," he says.

What Glaxo, maker of Zantac, an ulcer drug, is doing to streamline the submission process is using a stand-alone imaging system — Optical New Drug Application from Laser Recording Systems, which runs on the Laser Data platform and uses 5¼-in. optical discs to store the clinical trials and document page images.

This, Dobbs says, "gives FDA reviewers desktop access to the entire submission and pro-

vides necessary word processing productivity tools. As a result, the entire process is more efficient, the review period is more likely to be shortened, and submission problems such as the need for more specific data can be identified early on."

Efficiency in management of trial documentation prior to submission is actually a more important focus for systems efforts than the submission itself, according to Philip Loftus, director of R&D information services at ICI Pharmaceuticals Group, a business unit of ICI Americas, Inc. in Wilmington, Del. "We recognize that electronic submission is where the industry is headed," he says, "but today, we are not sure what the actual benefits are or if it speeds up the review process. The real benefit comes from improving our own internal document management process. That is where the savings in time and manpower can be gained."

David Carlin, director of clinical research and development at Cetus Corp. (maker of Proleukin IL-2) in Emeryville, Calif., would agree. Carlin says that a clinical trials database has saved his department many months on data entry and data reconciliation. The system was created using Oracle Systems Corp.'s Oracle and its SQL tool set and runs on a Digital Equipment Corp. Vaxcluster.

The database consolidates all the research data from clinical studies for FDA review, as well

as providing an environment that mimics existing paper forms.

Today's R&D systems, however, barely scratch the surface of what will have to come as the industry and the research process become increasingly internationalized.

Loftus points out that "as the industry becomes increasingly more international and operates on a worldwide span, development resources and capabilities are being diversified on a global basis." Companies are merging and making acquisitions without regard to borders.

For example, one year ago, SmithKline Beckman Corp. in Philadelphia completed a merger with Beecham Group PLC in London to become SmithKline Beecham. In addition, merger proceedings are currently under way between Genentech and the Swiss firm of Roche Holdings Ltd.
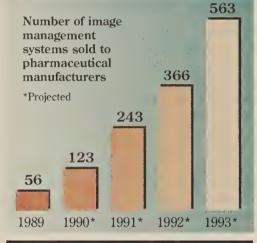
Companies are also creating international development labs to meet the needs of global markets. These changes will require yet another generation of support systems, more complex than the current one.

Peter Keen, executive director of the International Center for Information Technology in Washington, D.C., says he sees large technological hurdles looming. "We don't yet know how to handle massive databases and image files," he says, "let alone how to transport them internationally."

Greene is a free-lance writer based in the Boston area.

Research in smaller doses

Small pharmaceutical makers have long depended on contract research organizations to handle some phases of research and testing. Recently, however, large drug manufacturers have also been hiring CROs for a considerable amount of business, including clinical trial studies, collection and validation of data, data management, new drug application document preparation, submissions and post-market clinical trials.

Awash in new business and facing the same pressure as manufacturers to reduce time to market, some CROs are starting to think small. By supplementing existing mainframe and minicomputer-based systems with personal computer-based local-area networks, they cut testing time and trim costs.

One firm reaping big benefits from a small platform is Biometric Research Institute, Inc. in Arlington, Va. It started downsizing its operations to a LAN last fall and has been doing projects on the network since early spring.

"The primary advantage is that people who actually use data have better access," says Daniel Wilson, director of computer services. Whereas nurses, researchers, statisticians and others previously had to go through programmers, they now pull up data directly. Wilson cites the task of updating master files, which used to take two days but now takes one hour.

The second reason for downsizing was ex-

pense. Processing power is 10 times less expensive on micros than on a large platform, he adds.

Wilson also points to better programming tools available on micros. He estimates that 95% of his programming on micros is reusable.

Using a 386 Compaq Computer Corp. server to support 25 PC clients and Novell, Inc.'s Netware, the company is managing more than 20 smaller studies in its Arlington offices. Larger trials and the work of a second facility are being managed on a mainframe, but Wilson says that full-scale migration will take place within a few years.

Medical and Technical Research Associates (MTRA) in Needham, Mass., has moved in the opposite direction for an interesting reason. Last year, the company acquired a Digital Equipment Corp. VAX 3800 to supplement the PC-based Novell network it installed in 1987. Small trials or work requiring multiple users now run on the network, while large trials run on the VAX.

Although he believes the networked system is faster and more cost-effective than the VAX, John Balser, director of statistical and data processing services, says the DEC system gives the company a marketing advantage. MTRA attracts more clients, he says, because pharmaceutical makers seem to feel more comfortable contracting work out to CROs who have big systems similar to their own.

COMMENTARY

Clinton Wilder

No A's for B-schools

Forget what you know. Re-engineer the corporation. Rethink customer service, employee compensation, systems development. Change or perish.

All forward-thinking information systems executives have heard these exhortations in the past year or so. Most of their bosses have probably heard them, too. It's becoming motherhood, apple pie and change the way you do business — with the IS community at the forefront of that change.

Are America's business schools adequately preparing the next generation of managers and executives to think that way? I don't think so. And I'm not alone.

In a rare display of *mea culpa*, a panel of business school deans recently completed a study that concluded, in the words of *The Wall Street Journal*, that "many MBAs today are merely number-crunchers, ill-prepared to manage in the rapidly changing global marketplace." If the hallowed B-school halls continue their traditional ways, the panel warned that business schools may risk "professional irrelevance."

As we all know too well, corporate change is not easy, especially when business is good. And business has been very good in the business school industry, which is still riding the coattails of the 1980s. An influx of foreign students, particularly at the top business schools, has also helped keep enrollments high.

So there isn't much competitive pressure to change the way things are done. The motivation for change in business schools, just as in corporations, must come from forward vision.

I'm not just talking about recognizing the rapidly changing role of information technology. In all areas of business, conventional rules about what functions should be performed by suppliers and customers are becoming very blurred. In consultant Michael Hammer's words, companies are becoming "boundary-less."

Among the examples of this phenomenon are Procter & Gamble and Wal-Mart, which use satellite links and electronic data interchange to redefine the concepts of inventory, distribution and marketing in their business relationship with each other.

But how many business schools still teach management methods based on the old rules of competition — be the lowest cost producer, keep inventories steady, seek economies of scale?

Marketing may be the best example. How many students are learning 1960s-style mass marketing formulas when innovative users of database technology, such as American Express, can market to a segment of one consumer?

The panel of business school deans commendably urged their colleagues not to suddenly add a slew of courses on IS or globalization. That would be like the automation craze of the data processing era, when computers were brought in without much consideration of the way they could change business processes. The panel recommended nothing less than a serious reassessment of the entire business school curriculum — and even of admission guidelines.

To be fair, some business schools are indeed reassessing. At an IS conference at Babson College in May, Babson President William Glavine, former vice-chairman of Xerox, admitted that few of today's MBA programs adequately teach the role of IS — and that the Wellesley, Mass., business-oriented college is studying what to do about it. The University of Pennsylvania's prestigious Wharton School chose Thomas Gerrity, whose Index Group consultancy has advised clients on IS-enabled change for years, as its new dean. That's a good sign.

In the 1980s, many of the best MBAs flocked to Wall Street to play dealmania, a hyperkinetic business craze that left crash-and-burn legacies ranging from Campeau Corp. to Drexel Burnham Lambert. In the 1990s, more MBAs are commendably forsaking careers as asset rearrangers (a.k.a. acquisition/divestiture specialists) to make companies run better.

Let's hope that the schools granting those degrees can change in time to make their graduates the force for change that U.S. businesses desperately need.

Wilder is Computerworld's *senior editor, management.*

Could VDT overexposure be terminal?

CURRENTS OF DEATH
By Paul Brodeur
Simon & Schuster, $19.95

"A metronome is just a device which, in essence, moves in two directions. And a 60Hz field is a field where first the magnetic wave moves in one direction, and then it moves in another direction, just like this [metronome]. Only it happens 60 times a second. So what this means, then, is that any kind of molecule that is in a person's brain, or in a person's body, is being twisted 60 times a second up and back." — Dr. Harris Busch in *Currents of Death.*

What is described above might be your brain near a computer terminal. Or a hair dryer. Or an electric blanket. Paul Brodeur's grueling point in *Currents of Death* is simply that society has ignored the potential hazards of the electric field given off by appliances and power lines.

He writes, "So dependent are we upon the benefits of electricity, and so accustomed have we become to it, that we have accepted without question the necessity and ubiquity of its presence."

Brodeur suggests that even commonplace electric appliances such as VDTs should not be taken lightly. His theory is that exposure to electric fields does result in physical responses, such as the metronome metaphor. He doesn't recommend that the public hide from VDTs, hair dryers or electric blankets, but like ultraviolet rays, we should not overexpose ourselves to them.

At the beginning, Brodeur's book reads like a detective story, with epidemiologists playing the role of Sam Spade. He investigates the connection between childhood leukemia and those ubiquitous power lines in several research projects spanning more than a decade. He airs research that has been ignored or discredited by other scientists.

Brodeur tries to breathe life back into such research by showing time and time again that those doing the discrediting were either from the government, which has a vested interest in the military use of electric fields, or by scientists working for the Electric Power Research Institute, a research organization that is funded by the electric industry.

Once he lays out the labyrinth of research on the effects of electric fields and electromagnetic fields, he zeros in on the one electric appliance to which millions of American workers are exposed for many hours each working day — the VDT. He details how a computer's hardware creates magnetic fields.

"The display terminal operates on the same principle as a television set: The image on the screen is produced by an electron beam generated in a CRT — an evacuated glass tube containing an electron gun, which produces a narrow electron beam. This beam is accelerated and directed toward the front of the tube by high voltage — between 15,000 and 25,000 volts — from a step-up transformer known as the flyback transformer. When the beam strikes the inner surface of the CRT face, or screen, it interacts with a phosphor coating to generate a spot of visible light, which glows in the form of a letter or number."

Brodeur writes that the average VDT produces a 15-KHz radio-frequency range from the vertical sweep of the electron beam across the screen and a 60Hz range from the horizontal sweep. He writes that manufacturers have long ignored the 60Hz range, although he claims it is the dominant field and the one suspected by some scientists to cause health problems. The book describes reports from the late 1970s from AT&T Bell Laboratories that assured that VDTs are safe.

But several case histories, such as one from 1980, say otherwise. This report describes a case where four out of seven pregnant VDT operators at the *Toronto Star* gave birth to infants with serious birth defects. While Brodeur writes that officials "were falling over themselves" to deny that the Toronto birth defect cluster and others had anything to do with the use of VDTs, he spends the rest of the book discussing studies that point to some relation.

Brodeur's work spawned a special cover-story report in *Computerworld's* sister publication, *Macworld* [July 1990], that warned users to stay an arm's length away from the monitor's screen and four feet away from the back and sides of terminals.

In conjunction with the report, 10 monitors were tested for electromagnetic levels, many of which tested within ranges high enough to correlate with studies showing cell mutation and cancer in humans.

Although the subject matter is technical, don't mistake it for dull. It does, however, get nitpicky on occasion. Brodeur sometimes dwells on insignificant rivalries between researchers and whines that the press, even the computer press, does not always present his side of the issue.

As an information systems manager, you will likely have to face conflicting reports on the potential for health problems of your work force because of electromagnetic radiation emanating from VDTs. Since Brodeur's book does pack historical and medical information about the subject in an interesting manner, it could be an easy way to bone up on his side of this controversy.

J. A. SAVAGE

Savage is a Computerworld *West Coast senior correspondent.*

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What's all this noise about AD/Cycle?

How excited you get depends on who you are

BY ROBERT V. BINDER
and JUDITH E. PHILLIPS

Like the "shot heard 'round the world," IBM's September 1989 announcement of AD/Cycle and Repository Manager promises to have a profound impact on the software development world during the next decade.

AD/Cycle has been described as nothing less than a "strategic application development solution" whose far-reaching implications will leave virtually no information systems organization untouched.

Yet all the pre- and post-announcement publicity prompts an important question: How ready are users for AD/Cycle?

How receptive?

A recent survey we conducted (see story page 54), combined with an earlier computer-aided software engineering (CASE) usage survey and recent discussions with many large organizations, indicates that there is much to be concerned about. The following were among the key findings:

● Most IS organizations have far to go before they can embrace AD/Cycle and all of its implications. This lack of organizational preparedness is a result of managerial attitudes, staff capabilities and the type of IS environment.

● Currently, most software development managers are in the process of gathering information about AD/Cycle and trying

Binder is president of Robert Binder Systems Consulting, Inc. in Chicago, which specializes in management and technical consulting for software developers. Phillips is the firm's director of business development.

to assess exactly what it will mean to them and their organizations.

While it is difficult to be well informed about products and technical specifications that are currently unavailable, managers are talking with IBM business partners and other customers, as well as attending seminars and reading everything that comes across their desks.

● Most feel the IBM announcement has had significant impact — both within their organizations and among their suppliers, customers and competitors. However, more than seven in 10 managers are adopting a wait-and-see attitude.

● One in three respondents reacted enthusiastically to the announcement and anticipated the repository services rollout with excitement. These managers are looking at AD/Cycle as the total, standardized platform needed to increase the productivity of their software development shops and quality of their products.

● One in four respondents reported feeling skeptical and/or cynical. Major concerns are that the AD/Cycle architecture appears to be too big, too expensive or too restrictive.

Pointing to the lack of a tangible product as well as the number of technical delays prior to the September 1989 announcement, several respondents voiced the "vaporware concern."

● One in three of the respondents are undecided. While AD/Cycle sounds good, they reason that it just might not be for them.

● While most managers have adopted a wait-and-see attitude, almost 30% are starting an AD/Cycle implementation plan now. However, even in organizations that are currently planning for AD/Cycle, the readiness level is generally low. This is reflected in the fact that fewer than one in 10 of the surveyed organizations have made a firm commitment to AD/Cycle.

Two key questions

At the simplest level, AD/Cycle is both a collection of products and an approach to software development. Because the approach is as equally important as the products, successful implementation of AD/Cycle is as much an IS responsibility as it is IBM's.

There are two vital issues regarding AD/Cycle. The first important question for IBM customers to ask themselves is, what do I need to do to follow modern software development practices in my shop? Without a realistic, effective plan of attack, the power of the AD/Cycle tools cannot be harnessed.

The second major issue has more to do with the past than the future. Since the mid-1960s, IS organizations have been producing application systems at a prodigious rate. Although estimates vary, several sources claim that in the U.S. alone, there are more than 70 billion lines of Cobol in use. That represents an investment of around $350 billion. These

M. E. Cohen

- **Many IS shops unprepared**
- **Only one in 10 are committed**
- **'Wait and see' is popular**

figures suggest that maintenance is the dominant IS software activity. So the second key question is, how can AD/Cycle support software maintenance?

It makes sense that interest in (and readiness for) AD/Cycle is closely related to its ability to support software maintenance.

Ready or not . . .

The most immediate impact of IBM's AD/Cycle announcement is an endorsement of CASE. By endorsing the automation of all steps in the system development life cycle, IBM has jumped into the CASE environment and legitimized it.

The repository is a host-based tool whose open architecture allows the mixing and matching of CASE tools within an integrated environment. The repository acts as a database of rules about a company's information and a warehouse for reusable software components.

Properly used, the latter can provide a single point of control for all software development activities. Information in the

repository can be accessed by multiple users, multiple CASE tools or multiple copies of a single CASE tool.

Lots of spadework

There are several essential prerequisites for AD/Cycle: DB2, because the repository is a DB2 application; experience with modern software development practices, such as structured analysis; advanced CASE systems; and use of such methodologies as Spectrum, with appropriate project management control.

IS managers also need to be convinced that AD/Cycle is worthwhile. A big inhibiting factor is that proper implementation of AD/Cycle takes a lot of groundwork before the product arrives. The proper use of the AD/Cycle Repository Manager and its accompanying tools and technology requires the software development automation found in CASE. We use the term CASE to mean "upper" CASE products that support design activities.

However, organizations with even a medium level of CASE experience are in a small minority. Where CASE has been adopted, it is infrequently applied. Almost half of the IS shops surveyed have never used CASE technology in their software development. Nearly two-thirds have either used the technology less than one year or never used it.

Nationally, only 20% of software de-

velopment organizations are CASE users. Of those that are CASE users, only 40% have used CASE on a majority of their development projects. Overall, only one in 20 software development groups are making effective use of CASE technology.

The AD/Cycle repository is implemented in DB2. Yet almost half of the companies surveyed are not DB2 users. Only one in 10 DB2 shops have more than three years of experience with it. This lack of software developer DB2 experience can only lengthen the learning curve and slow the process whereby AD/Cycle implementation leads to a measurable increase in productivity.

While half of the respondents have a development center, fewer than one in five are planning one. Fewer than one in 20 have established a software metrics program; only one in 10 of those without such a program are planning one.

Another inhibiting factor is that systems developers cannot effectively use AD/Cycle unless they are well versed in the fundamentals of software engineering. The high level of software development productivity and quality achieved by a "top-gun" CASE user can only come with high levels of CASE skill and software development sophistication. Furthermore, nine of 10 survey respondents report that less than half of the developers in their shops have had training in software engineering fundamentals. In two thirds of the respondent groups, fewer than one in four of the staff are trained in software engineering fundamentals.

The successful use of CASE and AD/Cycle also depends on the consistent application of a defined software development methodology (a documented set of procedures with specific tasks and deliverables). Only one in 10 of the surveyed firms have a defined methodology that is accepted and consistently used or is mandatory on all projects. One out of four have no defined methodology at all.

Preparedness profile

How ready are companies for AD/Cycle? All of the respondents whose organizations have made a commitment to AD/Cycle are now starting implementation plans. Yet the committed organizations' managerial attitudes and perceptions about AD/Cycle do not jibe with the reality of their respective IS environment and staff skill level.

Of the organizations that have begun AD/Cycle implementation plans, four in 10 have never used CASE; more than one-half have never used it or have used it for less than one year.

Looking at technical skills, almost 75% of the committed organizations have less than one-quarter of their staff trained in software engineering fundamentals; fewer than one in 10 of the organizations have more than half of their staffs trained.

It is interesting to note that organizations committed to AD/Cycle have a slightly greater skill deficit than those that have not committed to it.

Software maintenance

There is no shortage of recommendations on how to adopt AD/Cycle for software development. IBM has a short list of important items repeated in its AD/Cycle documentation and presentations. However, the real make-or-break issue for AD/Cycle will be its support of software maintenance. The reality of IS today makes this certain.

The key to using AD/Cycle in a mainte-

nance-dominated shop is to take a re-engineering approach that makes good use of existing AD/Cycle facilities. Under this view, AD/Cycle becomes primarily a maintenance environment and secondarily a development environment. Existing CASE software and hardware can support this with a suitable shift in emphasis.

The goal is to place all system specifications and implementations — old and new — under the control of the repository. This requires action on several fronts. A model that gives a top-level slice of all existing systems should be developed first and loaded into the repository. As maintenance projects come up in the normal course of work, existing systems can be gradually reverse-engineered. In this way, the initial high-level model is

gradually extended. This activity can use the same structured methods and CASE tools normally used for development. Existing systems will then be documented in the repository.

Although using CASE and structured methods for reverse-engineering requires changes in normal development practice, this is an excellent approach. Information collected in the course of maintenance is not thrown away when a program is updated and returned to production.

Bottom-up or top-down

While much-hyped, AD/Cycle can effectively increase software development productivity and quality only in an organization that is prepared for it.

While managers are enthusiastic in firms now starting an AD/Cycle implementation plan, a big gap exists between the perception of what AD/Cycle requires and the reality of the IS environment and technical skills.

If AD/Cycle is viewed as a top-down development solution, it is not likely to be accepted by the typical IS organization because software maintenance is the dominant IS software issue.

There is a general desire for improvement but a reluctance to embrace development solutions for maintenance problems. This is a rational response, but it poses an immediate obstacle to AD/Cycle acceptance.

Because AD/Cycle can benefit software maintenance, some reconciliation of software maintenance with AD/Cycle concepts and facilities is needed. Our survey data suggests that a bottom-up, gradual approach tailored to the development/maintenance mix of each organization has the greatest chance of success. With this approach, AD/Cycle can become a high-leverage tool for the IS organization with a significant application software investment. ●

Maintenance roadblocks

The maintenance juggernaut explains much of the lack of readiness for and interest in AD/Cycle.

The methodical software engineering approach advocated in AD/Cycle is completely at odds with the typical IS software maintenance strategy. The concepts and facilities in AD/Cycle are heavily oriented toward the early part of the software life cycle. IS managers see little practical value in following an orderly, disciplined approach because maintenance is inherently reactive. In turn, this perception strongly influences attitudes about how to approach development. This attitude is very much part of the overall maintenance problem and, therefore, part of the AD/Cycle readiness problem.

In the typical organization, less than 20% of resources are used for development. The remainder is split equally between maintenance and development. As such, maintenance defines the way IS does business.

If it's true, as some argue, that IBM is emphasizing the wrong part of the

software development life cycle by stressing new development rather than maintenance and re-engineering, the apparent lack of AD/Cycle preparation is more understandable.

But does all this mean that AD/Cycle cannot help with software maintenance?

Making effective use of AD/Cycle for maintenance will require the same concerted effort advocated to adopt it for development.

AD/Cycle can be of significant help for the maintenance problem in three ways: First, the repository can be used to exercise software control over all existing programs, databases, files, etc. Second, CASE tools can be used to reverse-engineer existing systems. Some offerings in the AD/Cycle tool suite provide excellent support for re-engineering. However, most of the hard work of this must still be done manually. Third, proper development use of AD/Cycle will reduce the time and cost of maintenance in the long run.

ROBERT V. BINDER and
JUDITH E. PHILLIPS

NATIONAL
BRIEFS

Two for the road

As their respective stock prices skyrocketed beyond investor comfort, fast-trackers **Network General Corp.** and **Synoptics Communications, Inc.** declared two-for-one stock splits. In addition to making the stock more affordable, Synoptics President William Ruehle and Network General Chief Executive Officer Harry Saal said that each company's split is aimed at attracting a wider range of stockholders.

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Lucky three

Networking systems vendor **3Com Corp.'s** Chairman Bill Krause likes to count in multiples of his firm's signature number, and the company's fourth quarter — ended May 31 — gave him another opportunity. 3Com's $116.8 million in fourth-quarter revenue marked a 9% increase over the preceding quarter. Net income of $7.3 million was up 9% from the third quarter as well. According to 3Com President Eric Benhamou, new product sales accounted for 27% of the fourth-quarter take. And, hey, annual revenue of $419 million, up 9%. Not divisible by three was the year-to-year profit comparison: down 40% to $20.5 million.

T1 market sitting in limbo?

Dozing but not defeated, networking vendors muster resources for next generation

BY JOANIE M. WEXLER
CW STAFF

In the lull before the anticipated T1 technology storm, some users may be finding themselves at a loss as to what equipment investments to make today.

The T1 arena is in a period of technology transition that has users nervously checking their watches in anticipation of bandwidth-voracious data networking applications that will require new products to accommodate them. This state of limbo is making the saturated T1 market appear to be cooling as vendors take the time to develop support for new technologies, form alliances and expand internationally to meet the new generation of networking trends.

The waning market perception has been fueled by recent disappointing earnings announcements from industry leaders such as Network Equipment Technologies, Inc. (NET) and Newbridge Networks Corp. The market, however, is more dormant than dying, according to analysts.

These revenues still reflect substantial growth, even though they fell below projections. In fact, multiplexer pioneer Timeplex, Inc. has actually reported that first quarter 1990 was its most profitable first quarter ever.

A couple of years ago, analysts predicted that competition would cause prices to drop significantly on high-end multiplexer equipment, allowing the next tier of corporate buyers to enter and nourish the market. This has not happened, according to Frank Dzu-

Everybody's doing it
Alliances among T1 vendors can speed LAN traffic to T1 links

Source: The Yankee Group   CW Chart: Paul Mock

beck, president of Communication Network Architects, Inc., a consultancy in Washington, D.C.

"The vendors haven't gone along with the market dynamics," he said. "Margins in the T1 arena are narrow, and vendors like NET say they're a premier company that won't lower prices under competitive pressure."

With data traffic growing at about 35% per year, according to Boston-based research firm The Yankee Group, and with networking habits changing, many users may soon need to swap out their old T1 multiplexers, which burst on the scene after AT&T's divestiture and sent many companies to private networking solutions. T1 multiplexers are devices that combine multiple independent voice and data streams and allow them to be transmitted across a single T1 pipe.

Currently, the hitch in investing in new equipment is that users need new-generation technologies implemented at different rates by different vendors. Unlike other areas of the industry,

there has been no push in the T1 market toward compatibility among multivendor products, leaving users pretty well committed to a single supplier.

New products will be needed to accommodate the large, random file transfers that are emerging as local-area networks link up over wide-area communications lines — particularly to communicate with remote mainframes.

"Within three to five years, all the current T1 products will be history," predicted Steven A. Taylor, president of Distributed Networking Associates, a consultancy in Greensboro, N.C.
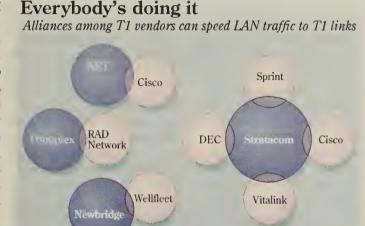
Taylor noted that when T1 multiplexers stormed the market six years ago, there was virtually no LAN interconnection going on, and data ran primarily in continuous streams, resulting in the proliferation of time-division (circuit-switching) multiplexers, which dedicate 64K bit/sec. channels within the T1 pipe to preset applications.

Market leaders NET, Timeplex and Newbridge are still circuit-switching-oriented, added Timothy Zerbiec, vice-president of Vertical Systems Group, a Dedham, Mass.-based market research firm. This, however, is an inefficient transmission method for large, random file transfers, Zerbiec said.

With today's attractive carrier rates for virtual private networks, which allow customers to lease a portion of the public network, users are plunking much of their voice traffic — which is slogging along at a 5% growth rate per year, according to The Yan-

BRIEFS

Count us in

Cray Research, Inc. had said it was going to buy itself a big slice of the minisupercomputer market, and now the planned purchase of Santa Clara, Calif.-based **Supertek Computers, Inc.** is a done deal. As part of the $32.5 million acquisition, Supertek — now a Cray subsidiary — will relocate its headquarters to Mendota Heights, Minn., and gear up for manufacturing at its parent's supercomputer plant in Chippewa Falls, Wis. The deal, Cray Chief Executive Officer John Rollwagen said, will enable the firm to bring a multiprocessor Cray Y-MP-compatible minisupercomputer model to market sometime next year.

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In the footsteps

CTG/Scientific Systems Services is putting more than its annual dues behind **Adapso's** efforts to broaden its software industry representation. Last week, Vincent Lamb Jr., president of the systems integration arm at CTG, a Melbourne, Fla.-based consulting firm, was named to the board of the industry association's recently launched Information System Integration division (ISI). In lending his services to ISI, Lamb is furthering a CTG tradition: Company President John Courtney is a past chairman and present board member of Adapso.

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The Kaypro shuffle

Last seen mired in a power struggle and financial chaos, **Kaypro Corp.** now has a deadlock-preventing fifth director and a new leader to aid its effort to continue its saga past Chapter 11. Late last month, the bankruptcy court approved the minority and majority shareholders' choice for a new director, Leonard Kneeland. The board then appointed veteran Kaypro employee and turnaround maven Ben Fisher as president and chief executive officer. Last week, Fisher made his first official executive announcement: Production is up and running, with some $1.5 million worth of backlogged orders expected to be filled by the end of this month.

HDS brushes up on marketing tactics

BY J. A. SAVAGE
CW STAFF

"Marketing? What marketing?" cried users and analysts alike two years ago when mainframe maker Hitachi Data Systems Corp. (HDS) was still National Advanced Systems. The self-admitted lack of marketing kept HDS a distant third behind IBM and Amdahl Corp. in the IBM-compatible mainframe market (see chart).

Since May 1989, when Hitachi Ltd. bought 80% of National Advanced Systems and Electronic Data Systems (EDS) bought 20% to create HDS, the company has been taking marketing "voice" lessons so it can be heard — if not louder than the others, at least among the fray.

Given an infusion of patience by majority owner Hitachi, the company has also made business plans aimed far into the future — a major change in corporate attitude. Prior to the Hitachi buyout, then-owner National Semiconductor Corp. used the company to a large degree as a cash cow, said Mark Hess, an analyst at Gartner Group, Inc.

"They tried to do some value-added strategic positioning but always had the rug pulled out from under them with things such as layoffs," Hess said. HDS insiders agreed with the cash-cow characterization.

Now, HDS is on its own, able to plow whatever profits it makes back into the company.

HDS has gone through two reorganizations in 13 months, primarily to consolidate a marketing function that was spread geographically and across corporate divisions. "It's Marketing 101," said James Balassone, executive vice-president of marketing. "It's basic stuff, but because of the company's history, it's not easily put in place."

The firm has folded marketing people from its worldwide operations into a consolidated corporate operation and has added about 20 new people for a total of 70. Even so, HDS is still no match for IBM, which has thousands of employees in mainframe marketing, ex-IBMer Balassone said.

The reorganization also brought short-term planning to the regional marketing level and long-term planning to the divisional level. At the upper end, the division plans ahead five years and the region plans ahead one year. The two groups work on a two-year plan, said Tom Frana, vice-president and general manager of U.S. operations.

Analysts and HDS insiders said this far-reaching approach is completely different from the old National Advanced Systems. "HDS is focused on long-term growth," Hess said. "They talk in terms of the year 2040."
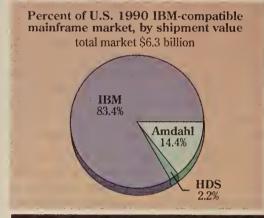
Announcing the firm's eagerly awaited line of high-end mainframes last month "was the first test of the new marketing organization," Frana said.

The announcement included a model HDS claimed to be the fastest mainframe yet announced, the EX 410, a four-processor computer. At 150 million instructions per second (MIPS), it could run 400 automated teller machines (ATM), compared with about 300 ATMs run by the top-end IBM 3090J mainframe, an HDS spokesman said. He added, however, that HDS has yet to benchmark the computer.

Third in line
HDS hopes its new mainframe line will gain ground for it on its two biggest competitors

Percent of U.S. 1990 IBM-compatible mainframe market, by shipment value
total market $6.3 billion

IBM 83.4%
Amdahl 14.4%
HDS 2.2%

Source: Annex Research   CW Chart: Paul Mock

With its new high-end offering, slated for availability in a year, HDS has gained the image of being in the same band as Amdahl and IBM, although it is still singing backup. Before the announcement, insiders and analysts said that the company was loitering somewhere backstage, hardly even in the same arena.

The machine was given a suitably gala debut: HDS' high-end announcement was a five-city, worldwide, near-simultaneous event. HDS used to announce new computers on separate dates, sometimes with conflicting information, such as incongruous MIPS ratings, according to President Gary Moore.

"I'm not sure our sales rep's story has changed, so much as now he has more credibility," Frana said. "He has some press clippings and spec sheets to show."

Marketing may be more coordinated, but the HDS metamorphosis is still in the cocoon stage, Hess said. "It's not an American approach," he said, referring to Hitachi's Japanese ownership and style; EDS' contribution, he said, is basically in name only. "They're not trying to change in 15 minutes or react to the pressure of quarterly profits."

Hess said that HDS is one year into the process of a change that will take another couple of years to complete. "Then you'll see a dramatically different field force, both in quantity and quality," he said.

While Balassone spoke of new products, such as an automated tape library and optical disc storage devices, Hess said he believes that with Hitachi's backing — and its Japanese-style patience — the firm will expand beyond those products, from printers to supercomputers.

Alcatel takes advantage of relaxing export controls

BY RALPH BANCROFT
IDG NEWS SERVICE

BRUSSELS — Alcatel NV, the telecommunications firm 63% owned by Cie. Generale d'Electricite (CGE) in France and 37% by U.S.-based ITT Corp., looks set to be among the firms to take early advantage of the recent relaxation of high-technology export curbs by the Coordinating Committee on Multilateral Export Controls (Cocom).

Willy Vandenberghe, adviser to Belgium's trade minister, said Alcatel's Antwerp, Belgium-based manufacturing facility is close to signing an agreement with the Soviet Ministry of Communications to export digital telephone exchanges.

The deal would initially involve Alcatel System 12 exchanges with a capacity of 50,000 lines. Industry sources said that a second stage in the proposed "framework agreement" calls for a joint-venture factory to be set up in the USSR to manufacture the exchanges. A third stage opens up the possibility of exporting the technology required to let the Soviet Union manufacture the very large-scale integration (VLSI) chips that power the exchanges.

Until several weeks ago, all parts of the agreement would have been banned under Cocom rules, but changes made at the high-level meeting in Paris opened the way for the export of digital telecommunications equipment. Nevertheless, Alcatel remains restricted from exporting the VLSI technology and must wait for further relaxation of export controls.

Alcatel and the Soviet Union are expected to sign the framework agreement next month, Vandenberghe said. The deal is expected to be one of the first of many such joint-venture agreements following the Cocom decision as the Soviet Union rushes ahead to modernize its telephone system, in which some of the exchanges date from before its 1917 revolution.

UK-based Telecommunications Research Centre estimated that a $350 billion market exists during the next 15 years for Western firms to export telecommunications equipment to the Soviet Union and Eastern Europe.

Separately, ITT said it has sold a 7% block of Alcatel shares to CGE for $640 million. It is the first step in unwinding its investment in the venture formed in 1986 when ITT sold its telecommunications business to CGE for $1.3 billion and 37% of the new firm's stock. Since then, the value of that shareholding has more than doubled. ITT is using the cash raised to buy back some of its own common stock.

Exec VP knighted at D&B

Dun & Bradstreet Software recently named Thomas McNeight as executive vice-president of U.S. field operations. McNeight, a senior vice-president and national sales manager at D&B Software and at Management Science America (MSA) prior to the MSA acquisition, will man the post vacated by Doug MacIntyre, who was also with MSA before the merger but left the company last month.

Chairman and Chief Executive Officer John Imlay said he had been aware of MacIntyre's intention to leave the firm for several months. McIntyre, now at Hyannis, Mass.-based Software 2000, said he took the position because it was an offer he "couldn't pass up."

McNeight will be responsible for all employees working outside of the Atlanta and Framingham, Mass., locations of D&B Software. He said he will begin his job by focusing on services and support within the U.S.

McNeight has been working for Imlay since 1979, when he started as a salesman at MSA. In his former position, he worked under MacIntyre as the national sales manager at D&B Software.

MAURA J. HARRINGTON

Phone companies strike up bandwidth

BY J. A. SAVAGE
CW STAFF

MENLO PARK, Calif. — A house in the suburbs these days might not only come with a swimming pool, cul-de-sac and variable mortgage — it could also turn out to be equipped with fiber-optic cabling that would allow the most graphics-intensive engineer to work from a home office or prepare the family for future high-definition television (HDTV) reception.

Phone companies have been busy installing fiber-optic wires throughout the trunk lines and urban offices of the nation to improve the quality and bandwidth of communications. However, while the cost of installation in such high-density areas is effective, it has been prohibitive in single-family dwellings.

Raynet Corp. claims to have an answer.

"It comes down to the last mile between the telephone company and your house — that remaining mile is roughly 35% of the cost of the physical part of the connection," said George Ballog, marketing manager at Raynet, a subsidiary of Raychem Co. created to cable residential areas with fiber-optic wire.

So far, Raynet has one 100-house installation in Lynnfield, Mass. This makes the company a striving second in the business to AT&T, which currently has about 2,000 houses in trial run.

Not door-to-door
While the Raynet project has kept costs down to approximately those of regular phone hookups, there is one missing link: It does not plan on stringing fiber optics all the way to your house. It will, however, come close enough to provide the bandwidth necessary for most expanded services, Ballog said. A doctor, for instance, could not only check a patient's record from home or a remote office, but he could also have the bandwidth necessary to receive an X-ray.

The firm will install a Subscriber Interface Unit at the curb for every few houses — from four to eight, depending on the number of expected phone hookups and the potential for telephone company-supplied cable television. From the interface unit, traditional copper wire or coaxial cable goes to the house. At short distances, such as 200 feet, copper can transmit data at 6M bit/sec., Ballog said.

"It isn't enough for HDTV, but it's enough for near-term use," Ballog said. The telecommunications industry is considering interactive video and newspaper services as future directions for the new hookups, although the services are not yet offered.

With the curbside beachhead, — which is the size of a network server — "you can justify the cost," Ballog said. In fact, it cannot cost more than regular phone wiring; state public utility commissions will not allow phone companies to pass on the increased costs to ratepayers. Ballog estimated the cost at about $1,200 per subscriber.

Most of AT&T's initial hookups do go all the way to the house, according to Laura Huffman, senior product planner at AT&T's Network Cable Systems in Atlanta. AT&T is not concerned about utility commission regulation, because it only affects "narrow-band" services, Huffman said. "We need to be prepared for broadband services," she added.

Cost sharing
If fiber went all the way to the home, Ballog said, the phone company and each home would have to be equipped with a converter to change the electric signal to a digital one and back again. This is an expensive proposition — but with a curbside box, he said, several households share the converter and its cost.

"By providing digital service at about the cost of copper, we enable the phone company to offer fancy services," said Robert Furniss, Raynet's senior product manager.

The curbside boxes, cabled to a telephone office interface, multiplex the copper-wire signals to digital for the optical fiber bandwidth, according to Furniss. At the receiving end, the interface units decode the digital information and send it over copper. With this "drop-box" architecture, Raynet is able to use from two to five fiber-optic lines for four to eight phone and cable television lines, leading to a phone company interface capable of handling 384 lines. One underlying assumption of the architecture, Furniss said, is that phone companies will be able to transmit cable television at some time in the future.

In the long term, Furniss said, Raynet is aiming at eliminating the modem; when each house is equipped with a sender and receiver for optical fiber, he said, there will be no need for a modem.

Raynet sees the market potential of fiber-optic cabling as enormous. "There are 120 million phones out there and 80 million lines to individual houses," Ballog said.

Users haul Atex to court

Users claim injury from keyboards and VDTs

BY ELLIS BOOKER
CW STAFF

NEW YORK — Claiming an assortment of physical injuries as a result of using the keyboards and VDTs sold by electronic publishing systems vendor Atex, Inc., two groups of journalists sued the company last month.

The suits are sure to rekindle debate over the health risks of using computer terminals, which has been linked to various ailments.

In separate actions totaling $288 million in damages sought, journalists from four newspapers and one news service alleged that Atex, an Eastman Kodak Co. unit based in Bedford, Mass., was negligent in warning users of the potential hazards of using its equipment.

The users said they had suffered a variety of "cumulative trauma disorders" to their wrists, arms and shoulders, including carpal tunnel syndrome, tendinitis and nerve disorders.

Both suits also claim that the Atex keyboards and monitors were defectively designed.

"It's far too premature to say anything about the case," said a spokesman for Kodak. The spokesman added that this was the first time a formal complaint had been filed regarding any keyboard produced by a Kodak unit. Kodak itself was not named in either suit.

The suit by three former *New York Newsday* journalists, filed in New York Supreme Court on June 4, seeks $5 million apiece in damages for the reporters, none of whom are currently working at the newspaper.

The journalists' spouses are seeking an additional $1 million apiece in damages for loss of support.

A second suit, filed in federal court in New York City on June 15, represents a total of 10 journalists from *Newsday, American Banker, The Associated Press, Discount Store News* and *The Village Voice.*

That suit, which seeks damages of $270 million, alleged that Atex "disregarded medical and scientific information, studies, tests, data and literature" concerning the relationship between repetitive use of computers and injuries.

One of the key requirements in winning a product liability case — a finding that a product was negligently designed or built and actually caused the injury — is now more difficult to meet. In the wake of recent court decisions, this finding must be based on clinical — not just statistical — evidence, according to Laura P. Berens, a Chicago-based lawyer who specializes in product liability.

T1
FROM PAGE 55

kee Group — back onto the public network.

Users predicted that with the advent of high-speed LANs, they should have no trouble filling T1 and higher bandwidth backbones with data only.

In addition, imaging, graphics and distributed applications are gobbling up bandwidth, spurring user appetites for bandwidth and bandwidth management technologies such as frame relay, an emerging standard for interfacing a LAN to a communications line that allows users to access bandwidth on demand.

Also on T1 vendor "to do" lists are T3, which provides 45M bit/sec. bandwidth, and fast packet, a speeded-up switching technology.

T3 multiplexers are currently shipping from Infotron Corp. and Timeplex. Fast packet and frame relay were introduced by market innovator Stratacom, which has been kept from dominating the market only by the large chunks of market share grabbed by Timeplex and NET when the

time was ripe, according to Joaquin Gonzalez, vice-president of Meta Group, Inc., a Westport, Conn.-based consultancy.
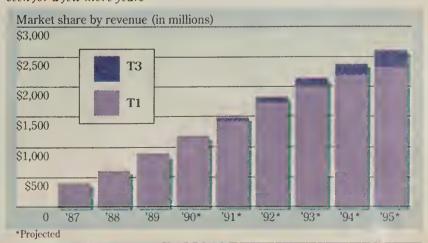
Gonzalez posed a major user concern: "You're thinking of making a major investment in a backbone to extend to hundreds of sites, and you're not even sure that the architecture is there yet from your installed T1 vendor. What do you do?"

Taylor advised that since many applications pay for themselves in six to 18 months, it

probably makes sense to put in a current generation of networking multiplexers, "realizing that you may have to trash your investment in three to five years instead of five to seven."

Gonzalez also said that with LAN/WAN integration on the horizon, "what animal do you buy to do bridging, routing, bandwidth management and network management? There's a big bonanza" for whomever can crack the LAN/WAN connectivity solution, he added.

But everyone's doing it
According to a survey on software theft published by the **Federation of Software Theft**, illegal software copying in the UK last year lost the rightful owners an aggregate $520 million. No wonder: The survey, which was commissioned and funded by a group of software firms including **Microsoft Corp., Lotus Development Corp.** and **Ashton-Tate Corp.**, said that more than half of all senior managers who use personal computers at work have indulged in illegal software copying.

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Hail, hail, Shenyang is here
Irvine, Calif.-based **Helionetics, Inc.** is teaming up with **North Computer Applications and Development Corp.**, which is based in Shenyang City, China, to launch **Shenyang Shenlong Computer Systems Co.** The joint venture, which is expected to enrich its parent firms by some $200 million over the next five years, will make and market a Sun Microsystems, Inc. Scalable Processor Architecture-based PC that can run both MS-DOS and SUN-OS.

Starting out
T3 technology is beginning to catch on, but substantial revenue won't be seen for a few more years

Market share by revenue (in millions)

■ T3
■ T1

$3,000
$2,500
$2,000
$1,500
$1,000
$500
0   '87 '88 '89 '90* '91* '92* '93* '94* '95*

*Projected

Source: The Yankee Group   CW Chart: Paul Mock

COMPUTER CAREERS

Promise them anything

In weighing a job offer, beware the hard sell and check for signs of trouble

BY SHERYL KAY
SPECIAL TO CW

Baseball scouts do it. Army recruiters do it. Sometimes, even information systems managers do it.

In the hope of attracting the best talent, IS managers sometimes paint an overly rosy picture of what lies ahead for a prospective employee. This tactic is more popular now than ever, recruiters say. Although there is a growing demand today for experienced IS professionals, corporate cutbacks make them reluctant to leave secure jobs.

Most assurances given in job interviews are true. Occasionally, however, managers make misleading statements. Marybeth Robeson, a recruiter at HR Enterprises in Kansas City, Mo., says that half the computer professionals who seek her services are leaving jobs because of unfulfilled promises.

"Some managers are so desperate [to hire] that they avoid telling the truth and exaggerate one or more aspects of the job," Robeson says. The evasion and exaggeration may not be intentional, she adds.

Misleading statements might relate to job duties, a candidate's ability to climb the promotional ladder, the company's commitment to IS or its dedication to employees.

One programmer/analyst at a Midwestern computer consulting firm, who asked to remain anonymous, says his employer failed to keep several promises made during interviews. He was assured he would be given a raise and an upgraded title after a 90-day trial period. "Two weeks after the 90 days, I still hadn't heard anything," he recalls. "I had to initiate talks with the person who had hired me." In the end, he got a raise of $19 per week and no change in title.

The company also assured the individual that he could be assigned to new development projects and that should he become ill during the trial period, the company would cover him. To this day, his only assignment has been in maintenance, and he has been docked two day's pay for being sick.

"In looking back on it, this has all been my own fault," the individual concedes. "I didn't get anything in writing, and the person who interviewed me was a real smooth talker."

He says several other employees of the firm are disgruntled because of unfulfilled promises. "If I had asked to speak with some of the employees, or sought out a few, I might have become aware of these problems beforehand," he says.

A similar situation confronted Rob Baillie after he was presented with the opportunity to start up a new office for the New Jersey consulting company where he worked. He wasn't aware that the company was positioning itself to be bought out.

"Four months after I accepted the position, it started to become apparent to me," Baillie says. Shortly afterward, the acquisition took place, and the financial resources needed to build the office were reallocated.

Baillie, who since left that firm and is now chief operating officer at Hestair Computer Group, Inc. in Jersey City, N.J., says he should have looked at his former employer with a more critical eye. The fact that the owners were ready to retire, for example, should have prompted him to do more research.

Another IS professional who requested anonymity faced unmet expectations after taking a job at an Atlanta insurance company. The manager who hired her told her she would be the lead member of a team designing and implementing a major database system. The database package had not been chosen at the time, she was told.

Six months later, the woman realized that the project was considerably larger than she had expected, the database had been approved before she joined the firm, and the product did not address users' requirements.

"I suggested breaking down the system into smaller units," she says. "At that point, it was too political. The users had been promised a certain type of system, and my manager was not prepared to tell them that he could not deliver it." Soon afterward, she took advantage of an opportunity to transfer to another job within the company.

"I should have seen a red flag during my interview," the woman says. The manager who hired her spoke in superlatives in outlining the initial job. "He told me that there were no negatives," she says. In discussing the subsequent position, "the manager made it clear that the job would have its ups and downs."

To avoid such scenarios, these IS professionals advise the following:
- Think critically.
- Check references.
- Get promises in writing.
- Don't brood if faced with unfulfilled promises.

Robeson recommends talking to managers to try to sort out the

> **S**OME MANAGERS ARE so desperate [to hire] that they avoid telling the truth and exaggerate one or more aspects of the job."
>
> MARYBETH ROBESON
> HR ENTERPRISES

truth. If these efforts prove unsatisfactory, consider taking another job at the company.

"Above all, don't get down on yourself," Robeson says. "Try to stick it out for at least one to two years."

The biggest danger is finding oneself repeatedly saying in job interviews that a former employer misrepresented a job. On the basis of his own hiring, Baillie says, he can accept unfulfilled promises as a reason for leaving a job once or twice. Beyond that, he assumes that the candidate harbored unrealistic expectations and would probably maintain these delusory presumptions if coming to work for him.

Kay is a Tampa, Fla.-based business consultant and free-lance writer specializing in emerging technologies and human resources.

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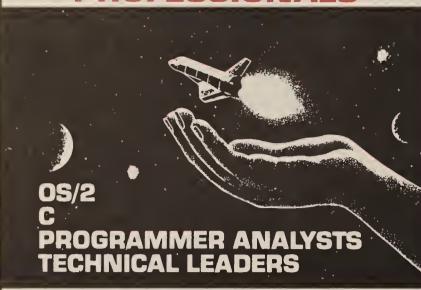
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A guide to the mail-order world

When buying computers through the mail, the first rule is 'buyer beware'

BY JESSICA KEYES
SPECIAL TO CW

If you're anything like me, you have about 50 pounds' worth of computer catalogs sitting on the floor, many of them chock full of hardware and software bargains.

With the purchase of computer equipment becoming more decentralized, information systems managers are taking advantage of the mail-order houses that issue these catalogs in putting together systems. But don't be too quick to dial that number.

An IS manager who is a friend of mine spotted an ad in a catalog for an affordable personal computer with all the bells and whistles and placed his order.

When the boxes arrived a few weeks later, my friend ripped open the cartons and assembled the machine. He flipped on the power switch and heard the fan whir. But he also heard something else — a sputtering sound — then the lights went out.

My friend called the company's hot line and was put on hold. Twenty minutes later he spoke with a technician who diagnosed the problem as a bad IBM Video Graphics Array (VGA) card. Then a customer service representative explained that the VGA card could only be replaced upon payment of an additional $195, which would happily be refunded when the bad VGA card was shipped back.

The next day, the new VGA card arrived. My friend anticipated success, but after he installed the new card, the keyboard would not work. He packed up the computer and sent it back.

Then the real headache started. My friend made dozens of phone calls during the next four months before his charge card account was credited properly. The VGA card had been lost at the mail-order company's shipping and receiving department.

The point of the story is not to stay away from mail-order houses but to be wary. I use them all the time and am usually pleased with the products and service. But I follow a prescribed set of rules.

• **Find out whom you're dealing with.** Have you ever heard of this company before? Has it been written up in major trade publications? Have any of your friends or acquaintances had any dealings with it? One valuable tactic is to call up the Better Business Bureau in the city where the firm is located and find out if there are any outstanding complaints against it.

• **Scrutinize the technical support.** Does the company have an 800 telephone number? It can get pretty expensive to wait on hold for 20 minutes when you have called long distance. When is technical support available? From 9 a.m. to 5 p.m. is OK, but 24-hour coverage is better. A word of advice: Obtain the phone number for technical support and call to check out the response before you place an order. Another word to the wise: Read the fine print to find out how long technical support is actually available to you: Thirty days? Ninety days? Forever?

• **Check out the return policy.** Despite the problems, my friend actually made a fairly good decision when picking the mail-order firm. The one he chose let him return his purchase with no questions asked. Most mail-order companies do the same. However, some of them, as described in the fine print of advertisements, charge a restocking fee — a percentage of the purchase price that a company levies to cover the cost of processing returned merchandise.

• **Know the law.** There is a Federal Trade Commission ruling that covers the mail-order business. Generally, the seller must ship your goods within 30 days of receiving the order, unless its advertisement clearly specifies otherwise. When 30 days has passed, the seller must contact you to ask if you'd like to cancel or accept a new delivery date. If you decide to cancel, the seller must return your check within seven business days or credit your charge-card account within one billing cycle. Under no circumstances can merchandise be substituted without your consent.

If you find out your order has not been received or the merchandise is defective, immediately notify the seller in writing — even if you ordered by phone. Check the warranty and documentation to make sure that you don't expect features or performance that the product is not designed to provide. And when you finally return the merchandise, make sure you get a receipt from the shipper. Many times, sending a copy to the seller will get you a refund of shipping costs.

If you're still not satisfied with the seller's response to problems, you have a friend in the Fair Credit Billing Act. It stipulates that if you pay for your merchandise by credit card — and I strongly recommend that you do so — you may have the right to withhold payment. Call your credit-card company and explain the situation. It will put the charge on hold until the situation is resolved.

If all else fails, you may find an arbiter in the Microcomputer Marketing Council of the Direct Marketing Association. You can write to it at: Mail Order Action Line, c/o DMA, 6 East 43rd St., New York, N.Y. 10017.

You've all heard the expression *caveat emptor*, Latin for "let the buyer beware." Most mail-order firms are legitimate businesses that offer substantial discounts. But the key word here is business — they're in it to make a profit, and to offer you their low prices, most of them do cut some corners. Your best approach is to be prepared.

Keyes is president of New Art, Inc., a management and computer consulting firm in New York.

CLASSIFIED

CLASSIFIED

The true meaning of training

A training philosophy helps direct resources toward the biggest payback

BY AVERY CLOUD
SPECIAL TO CW

In karate, the practitioner learns to focus the energy of his blow on the smallest possible point. He concentrates the power of a punch in two knuckles instead of the entire fist. The result is broken boards or opponents.

A training philosophy works the same way. It helps the manager focus all the energy of his training on the smallest possible set of objectives in order to generate the greatest benefit. One of the best ways to diminish effectiveness is to try doing too many things at once.

To give more power to the training punch, a training philosophy sets down clear goals and consistent directions. It answers several key questions:

- What kinds of employees should training produce?
- What does the company want from trained employees?
- At what pace will training or education be offered?

A training philosophy is the foundation on which a training program is built. Once developed, it will determine curricula, educational resources, schedules and budgets.

The goals of a training philosophy can be divided into the following five types of statements:

1) Purpose: The organization's beliefs about the need for professional training. The purpose is the training mission statement. It summarizes the company's commitment to and reasons for training. It also describes the needs to be addressed through training.

A training philosophy for the technical support department of a data center, for example, might state its purpose as: "We train employees to promote high retention and develop innovative individuals to meet the needs of fast growth and rapid change."

2) Breadth: The diversity or narrowness of the training. Broadly focused training is aimed at developing well-rounded employees, especially managers and supervisory people. It works well for managers who want to develop successors. A broad program usually includes training in various disciplines, including basic business and management skills.

Narrowly focused training develops specialists — people who master a set of skills but lack a view of the big picture. These individuals work well in companies where control and standardization are the norms.

The breadth statement for our technical support department might be: "We aim to develop specialists with narrow expertise covering no more than two areas. We do not supply training in general skills or business or try to enhance employees' attractiveness in the job market."

3) Depth: The degree of expertise expected. Managers must decide whether they need top experts or can work with moderately proficient performers. Some managers prefer "dim stars" with enough skill to get the job done but not enough to attract a lot of job offers; the aim is retention. Other managers like "shooting stars" who become highly skilled, give a lot to the company and then move on. The idea is that their short-term contributions outweigh the long-term contributions of dim stars.

The issue is less one of morality than of the strategy that best serves employer and employee. High-growth organizations usually do best with shooting stars who can innovate and deal with rapid change. Organizations with slower growth sometimes do better with dim stars less hungry for challenge and growth.

The depth statement for the technical support group might be: "Our employees are expected to master their assigned specialties and become top-notch performers in their field."

4) Velocity: The pace of training. Velocity relates to the rate at which employees develop. Some firms prefer slow, steady growth; others expect employees to burn up the road. Once again, the needs of the company determine the course. The need to slow down promotions may reduce velocity. A lack of suitable skills to complete key projects may prompt a high velocity.

The velocity statement for the technical support department might be: "Our training schedules are aggressive in order to produce the greatest proficiency in the least amount of time. Training is timed to maintain state-of-the-art know-how."

5) Rigidity: The relevance of training to other industries or companies. Hospitals, for example, often emphasize knowledge of computing in health care and may provide training specific to their organization. Some companies operate peculiar or specialized business systems and focus training on getting people proficient in them. Other companies operate in more standardized modes and require less rigidity.

In our example, the rigidity statement might be: "Our training is geared to this company and its industry. Required skills are not easily transferable to other industries or companies."

A given training philosophy may offend some people's sensibilities, but a controversial philosophy is better than none at all. Having established philosophical objectives, managers will make more consistent and coherent training decisions.

Cloud is manager of technical services in the information services department at Bowman Gray/Baptist Hospital in Winston-Salem, N.C.

STOCK TRADING INDEX

S&P 500 stock index

CW stock index

Indexes	Last Week	This Week
Communications	123.2	118.4
Computer Systems	86.5	88.1
Software & DP Services	128.3	127.7
Semiconductors	60.6	59.8
Peripherals & Subsystems	95.4	94.8
Leasing Companies	80.3	79.7
Composite Index	89.8	89.0
S&P 500 Index	151.6	150.0

Communications

Computer Systems

Software & DP Services

Semiconductors

Peripherals & Subsystems

Leasing Companies

CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, JUNE 27, 1990

EXCH		52-WEEK RANGE		CLOSE JUNE 27, 1990	WEEK NET CHNGE	WEEK PCT CHNGE

Communications and Network Services

EXCH	NAME	52-WK HIGH	52-WK LOW	CLOSE	NET	PCT
N	AMERICAN INFO TECHS CORP	68	55	60.625	-2.6	-4.2
Q	ANOREW CORP	26	19	19.25	-2.3	-10.5
Q	ARTEL COMM CORP	10	5	5	0.0	0.0
N	AT&T	47	35	39.125	-4.0	-9.3
Q	AVANTEK INC	7	2	2.875	0.0	0.0
N	AYOIN CORP	21	13	14.5	1.3	9.4
N	BELL ATLANTIC CORP	57	43	50	0.1	0.3
N	BELLSOUTH CORP	59	46	52.625	-1.6	-3.0
Q	COMPRESSION LABS INC	16	7	14.25	-1.1	-7.3
N	CONTEL CORP	37	23	26	-1.1	-4.1
N	DATA SWITCH CORP	5	2	3	-0.4	-11.1
Q	OIGITAL COMM ASSOC	27	17	22.75	-0.5	-2.2
Q	OYNATECH CORP	21	15	16	0.8	4.9
Q	FIBRONICS INTNL INC	13	5	11.875	-0.6	-5.0
Q	GANDALF TECHNOLOGIES	7	2	3.5	-0.1	-3.4
N	GENERAL OATACOMM INOS	7	3	3.625	0.0	0.0
N	*GTE CORP	36	26	32	-30.B	-49.0
Q	INFOTRON SYS CORP	11	4	3.5	-0.4	-9.7
N	ITT CORP	65	51	57	-1.9	-3.2
N	M A COM INC	9	3	5.125	0.3	5.1
Q	MCI COMMUNICATIONS CORP	49	31	41	-0.6	-1.5
N	NETWORK EQUIP TECH INC	34	9	9	-1.0	-10.0
Q	NETWORK SYS CORP	15	7	13.625	-0.3	-1.B
N	NORTHERN TELECOM LTD	30	1B	27.25	-1.1	-4.0
Q	NOVELL INC	57	24	53.25	-2.5	-4.5
N	NYNEX CORP	92	75	B0.5	-2.6	-3.1
N	PACIFIC TELESIS GROUP	52	39	44.125	0.1	0.3
A	PENRIL CORP	7	4	6.5	0.0	0.0
N	SCIENTIFIC ATLANTA INC	29	1B	26.625	-0.9	-3.2
N	SOUTHWESTERN BELL CORP	65	50	54	-1.1	-2.0
Q	3 COM CORP	19	10	16.375	0.5	3.1
N	U S WEST INC	41	33	35.875	-2.0	-5.3

Computer Systems

EXCH	NAME	HIGH	LOW	CLOSE	NET	PCT
Q	ALLIANT COMPUTER SYS	9	4	7.375	-0.4	-5.6
Q	ALPHA MICROSYSTEMS	8	3	3.125	0.0	0.0
Q	ALTOS COMPUTER SYS	B	5	7.375	1.9	34.1
N	AMOAHL CORP	20	11	15.75	0.4	2.4
Q	APPLE COMPUTER INC	50	32	41.5	1.5	3.8
N	AST RESH INC	26	7	22.5	0.1	0.6
N	BOLT BERANEK & NEWMAN	9	4	4.625	-0.3	-5.1
N	COMPAQ COMPUTER CORP	130	73	119.375	-4.6	-3.7
N	COMMOOORE INTNL	1B	6	7.625	-0.1	-1.6
N	CONTROL OATA CORP	23	16	18.375	-0.8	-3.9
N	CRAY RESH INC	51	31	46.625	-0.6	-1.3
Q	OAISY SYS CORP	5	0	0.156	0.0	24.B
N	OATA GEN CORP	19	8	11.375	0.1	1.1
N	OATAPOINT CORP	6	2	2.75	-0.3	-8.3
Q	DELL COMPUTER CORP	13	5	11.375	0.6	5.8
N	OIGITAL EQUIP CORP	103	70	82.125	-3.6	-4.2
N	FLOATING POINT SYS INC	4	0	2.875	-0.1	-4.2
N	HARRIS CORP	40	2B	34.375	-0.6	-1.8
N	HEWLETT PACKARO CO	58	40	46.25	-2.0	-4.1
N	HONEYWELL INC	103	73	97.25	2.0	2.1
N	IBM	122	93	11B	0.0	0.0
Q	INFORMATION INTL INC	16	12	13.125	0.1	1.0
Q	IPL SYS INC	14	5	10.5	0.8	7.7
N	MAI BASIC FOUR INC	7	2	2	-0.3	-11.1
N	MATSUSHITA ELEC INOL LTO	180	123	139.75	3.5	2.6
Q	MENTOR GRAPHICS CORP	26	14	22.25	1.0	4.7
N	NBI INC	3	0	0.344	0.0	9.9
N	NCR CORP	72	53	63.75	-1.9	-2.9
Q	PYRAMIO TECHNOLOGY	36	10	29.5	-0.3	-0.B
Q	SEQUENT COMP SYS INC	34	11	30.5	0.0	0.0
Q	SHAREBASE CORP	3	0	0.516	0.1	26.B
Q	SUN MICROSYSTEM INC	34	13	32.375	-0.6	-1.9
Q	SYMBOLICS INC	2	0	0.5	0.0	0.0
N	TANOEM COMPUTERS INC	30	17	23.625	0.9	3.8
N	TANDY CORP	49	30	35.75	-0.6	-1.7
N	ULTIMATE CORP	11	5	7.75	0.4	5.1
N	UNISYS CORP	25	12	13	-1.4	-9.6
A	WANG LABS INC	8	4	4.25	-0.1	-2.9

Software & DP Services

EXCH	NAME	HIGH	LOW	CLOSE	NET	PCT
Q	AMERICAN MGMT SYS INC	1B	11	17.625	2.0	12.8
Q	AMERICAN SOFTWARE INC	26	14	25.375	0.4	1.5
N	ANACOMP INC	7	2	2.75	-0.1	-4.3
Q	ANALYSTS INTL CORP	21	14	19.5	0.0	0.0
Q	ASHTON TATE	1B	9	11.375	0.9	B.3
Q	ASK COMPUTER SYS INC	15	7	B.625	-0.4	-4.2
N	AUTO OATA PROCESSING	59	39	54.B75	-0.4	-0.7
Q	AUTOOESK INC	55	33	53.5	0.8	1.4
N	BMC SOFTWARE INC	30	12	26.75	-0.5	-1.8
N	BUSINESSLANO INC	14	7	7.875	-0.3	-3.1
Q	COGNOS INC	9	4	B.625	0.1	1.5
N	COMPUTER ASSOC INTL INC	20	11	15.375	-0.1	-0.B
N	COMPUTER HORIZONS CORP	16	7	12.75	-0.B	-5.6
N	COMPUTER SCIENCES CORP	59	40	46.625	-1.0	-2.1
N	COMPUTER TASK GROUP INC	14	9	10.125	-1.1	-10.0
Q	COMSHARE INC	24	15	22.75	1.0	4.6
Q	CORPORATE SOFTWARE	15	8	13.5	0.0	0.0
N	GENERAL MTRS (CLS E)	37	24	35.5	-0.4	-1.0
Q	GOAL SYSTEMS INTL	18	10	16.5	-1.0	-5.7
N	HOGAN SYS INC	7	4	3.5	-0.1	-3.4
Q	INFORMIX CORP	17	8	15.25	0.3	1.7
Q	INTELLICORP INC	7	3	6.625	-0.3	-3.6
Q	LEGENT CORP	32	19	27.5	1.3	4.8
Q	LOTUS DEV CORP	39	21	35	0.0	0.0
Q	MICROSOFT CORP	79	26	76.25	-1.4	-1.8
N	NATIONAL OATA CORP	35	13	14	-0.5	-3.4
N	ON LINE SOFTWARE INTL INC	11	6	7.625	-0.1	-1.6
Q	ORACLE SYS CORP	188	15	22.375	-0.6	-2.7
N	PANSOPHIC SYS INC	19	10	13.375	-0.3	-1.8
Q	PHOENIX TECHNOLOGIES INC	12	2	4.5	0.1	2.9
Q	POLICY MGMT SYS CORP	42	2B	40.875	1.1	2.B
Q	PROGRAMMING & SYS INC	25	16	23	-0.8	-3.2
Q	RELATIONAL TECH INC	11	5	6.375	0.3	4.1
N	REYNOLDS & REYNOLOS CO	27	19	21	-1.B	-7.7
Q	SAGE SOFTWARE INC	16	7	13.875	-1.0	-6.7
Q	SEI CORP	21	15	20.375	0.4	1.9
Q	SHAREO MEO SYS CORP	17	12	13.25	-0.1	-0.9
Q	SOFTWARE PUBG CORP	2B	13	24.75	-0.3	-1.0
N	STERLING SOFTWARE INC	11	7	10.125	0.1	1.3
Q	SUNGARO DATA SYS INC	26	16	22.75	-0.3	-1.1
N	SYSTEM CENTER INC	26	17	21.5	0.0	0.0
N	SYS. SOFT INC	29	14	24.75	-0.8	-2.9
Q	WORDSTAR	2	1	1.125	0.1	5.B

Semiconductors

EXCH	NAME	HIGH	LOW	CLOSE	NET	PCT
N	AOV MICRO OEVICES INC	11	7	9.125	0.0	0.0
N	ANALOG OEVICES INC	11	7	7.5	-0.3	-3.2
Q	ANALOGIC CORP	11	B	9.375	0.3	2.7
Q	CHIPS & TECHNOLOGIES INC	26	15	20.5	0.B	3.B
Q	INTEL CORP	49	2B	45.B75	-1.6	-3.4
Q	MICRON TECHNOLOGY INC	21	7	12.25	-0.6	-4.9
N	MOTOROLA INC	88	51	83.125	-2.9	-3.3
N	NATL SEMICONOUCTOR	9	5	6.B75	-0.1	-1.B
N	TEXAS INSTRS INC	44	28	39	-0.5	-1.3
A	WESTERN OIGITAL CORP	15	6	13.25	-0.5	-3.6

Peripherals

EXCH	NAME	HIGH	LOW	CLOSE	NET	PCT
Q	ALLOY COMP	2	0	0.B13	0.0	0.0
N	AM INTL INC	6	2	2.5	-0.4	-13.0
Q	AUTO TROL TECH CORP	5	2	4.063	0.2	4.9
Q	BANCTEC INC	24	13	19.125	-1.1	-5.6
A	COGNITRONICS CORP	B	3	5.625	0.4	7.1
Q	CONNER PERIPHERALS	26	10	26	0.B	3.0
A	DATARAM CORP	20	B	17	-1.B	-9.3
N	EASTMAN KODAK CO	52	36	40	-1.1	-2.7
N	E M C CORP MASS	7	3	5.5	-0.1	-2.2
Q	EMULEX CORP	9	4	7.125	0.B	11.B
N	EVANS & SUTHERLANO	35	17	30	2.1	7.6
Q	ICOT CORP	2	1	1.375	0.1	10.0
Q	INTERLEAF INC	9	5	7.375	-0.1	-1.7
Q	IOMEGA CORP	6	3	4.938	0.3	5.3
Q	LEE OATA CORP	3	1	1.313	-0.1	-4.5
Q	MASSTOR SYS CORP	4	1	1.25	0.0	0.0
Q	MAXTOR CORP	17	7	14.125	0.0	0.0
Q	MICROPOLIS CORP	9	3	7.25	-0.3	-3.3
N	MINNESOTA MNG & MFG CO	88	68	85.25	-0.3	-0.3
Q	PERSONAL COMP PRODUCTS INC	5	4	4.063	0.0	0.0
Q	PRINTRONIX INC	15	7	12.875	-0.3	-1.9
N	QMS INC	21	B	17.125	-1.9	-9.9
Q	QUANTUM CORP	23	9	20.625	-1.1	-5.2
N	RECOGNITION EQUIP INC	13	4	5.125	0.6	13.9
Q	REXON INC	10	6	8.25	-0.1	-1.5
Q	SEAGATE TECHNOLOGY	20	10	13.625	-1.3	-8.4
N	STORAGE TECH CORP	34	9	31.125	-0.9	-2.7
N	TANOON CORP	3	0	2.813	0.2	7.2
N	TEKTRONIX INC	23	12	15.125	1.0	7.1
Q	TELEVIOEO SYS INC	1	0	0.375	0.0	-7.6
N	XEROX CORP	69	46	47	-1.0	-2.1

Leasing Companies

EXCH	NAME	HIGH	LOW	CLOSE	NET	PCT
N	CAPITAL ASSOC INTNL INC	8	3	3.25	0.3	B.3
N	COMOISCO INC	34	17	17.875	0.0	0.0
Q	CONTINENTAL INFO SYS	1	0	0.117	0.0	-6.4
Q	LDI CORPORATION	18	13	15.5	0.3	1.6
Q	PHOENIX AMERN INC	5	3	3.B75	-0.1	-3.1
Q	SELECTERM INC	9	5	5.5	-0.3	-4.3

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL

*Numbers are the result of a two-for-one stock split.

Fireworks

Investors react as sparks settle over Motorola/Hitachi dispute

Business was less than booming at the start of the week, but technology stocks thundered to a strong finish by Thursday. Motorola, Inc. is one firm that navigated the turbulent seas of turnaround. The chip maker's stock dropped 5 points early in the week as investors questioned the fate of the 68030 chip, but Motorola's stock began to regain lost ground late in the week — even before its agreement to settle an 18-month chip ownership dispute with Hitachi Ltd. out of court, finishing at 83¼, down 2¾ points.

Compaq Computer Corp. bounced back from an early fall, finally gaining 2½ points by Thursday to end at 122¾. Digital Equipment Corp. also rebounded, finishing at 85¼, up 2¼ points.

New products and a new president seemed to propel IBM and Apple Computer, Inc., respectively. After the debut of the Personal System/1 home computer, IBM issues picked up 1⅜ points to 117⅝. As Apple USA welcomed new leader Robert Puette, traders said hello to Apple stock, driving its price up 1½ points to 43.

As the named winner of a copyright dispute with Paperback Software International, Lotus Development Corp. saw no change in its share price by Thursday, steady at 34⅞. Software Toolworks, Inc., which took a recent tumble on speculation of low quarterly earnings, suddenly came out ahead last week, adding 1⅝ points to total 17⅝.

The announcement of an earnings drop sent AT&T reeling backward 3¾ points to 38¾, as its competitors gained. United Telecom, Inc. advanced 1 point to 39⅛, while MCI Communications Corp. wiggled up ⅜ of a point to 40⅞.

KIM S. NASH

Computerworld Smithsonian Awards celebrate the search for new heroes

Second annual awards gala honors winners in nine categories for the innovative use of technology in making our world a better place to live

BY CLINTON WILDER
CW STAFF

Against the dramatic setting of the National Building Museum's spacious Greek Revival atriums and massive Corinthian columns, technology innovators from three continents were honored with the second annual *Computerworld Smithsonian Awards* in Washington, D.C., last week.

Honorees ranged from billionaire H. Ross Perot to a 10-employee company whose software enables the blind to benefit from graphical interfaces on computers. Innovators from Thailand and Switzerland became the first winners from outside the U.S.

International Data Group, Inc. Chairman Patrick J. McGovern touched on this global theme in his closing remarks, noting the power of information and information technology in reshaping the political landscape of Eastern Europe in the past year.

Perot, founder of Electronic Data Systems Corp. and Perot Systems Corp., received the first *Price Waterhouse Lifetime Achievement Award*. The *Siemens Award for the Advancement of Science* went to Robert Tinker, chief scientific officer at the Technical Education Research Centers.

There were 220 award nominees. The awards "celebrate the capacity of our species to strive to do things better," said Roger Kennedy, director of The Smithsonian Institution's National Museum of American History.

And the winners were:

● **Business and related services — Berkeley Systems.** The tiny Berkeley, Calif., firm developed Outspoken, a "talkback" program that responds audibly to mouse or keyboard commands. It guides blind or visually impaired users through icon-based interfaces.

● **Education — The Jason Foundation for Education.** The foundation pioneered the Jason Project, a system that allows U.S. students to view and interact with undersea exploration projects in real time. In two years, Jason's broadcast technologies have allowed approximately 225,000 schoolchildren to experience sunken shipwreck explorations in the Mediterranean Sea and Lake Ontario.

● **Environment, energy and agriculture — Environmental Systems Research Institute.** Redlands, Calif.-based ESRI developed ARC/INFO, software that helps environmental planners analyze databases of geographic information. Among its users are Third World governments attempting to balance economic development with ecological preservation.

● **Finance, insurance and real estate — Swiss Options and Financial Futures Exchange.** Soffex links 50 Swiss financial firms into a single national exchange located in Basel, removing the need for a trading floor. The three largest Swiss banks and stock exchanges jointly developed the system, increasing the capabilities of Switzer-

▲ **Federal Express'** *Cosmos II system took transportation honors. (Left to right) Gene Farrar, Harry Dalton, Jim Turpin and David Dietzel accept award from* CW's *Fritz Landmann and Smithsonian's Roger Kennedy.*

land's largest industry, financial services.

● **Government and nonprofit — The Government of Thailand, Ministry of Interior.** The Thai Ministry in Bangkok automated its demographic data collection, developing five different subsystems to track Thailand's 50 million people. The system, storing more than 100G bytes, enables more accurate planning in education, health care and economic development.

● **Manufacturing — Lubrizol Corp.** The Wickliffe, Ohio-based chemicals firm implemented the Material Safety Data Sheet, a database of all chemicals used in the workplace, their dangers and required handling methods. The data is used by employees, federal and state regulators and customers.
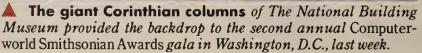
● **Media, arts and entertainment — Personics Corp.** Personics, based in Redwood City, Calif., developed a popular system that lets music buyers create customized audiotapes in record stores.

● **Medicine — Department of Biological Sciences, Purdue University.** Purdue professor Michael Rossman used supercomputer technology to create detailed models of human viruses. First applied to the rhinovirus — a common cold virus — the technique has the potential for greater understanding of more complex strains, including the HIV virus that causes acquired immune deficiency syndrome.

● **Transportation — Federal Express Corp.** Federal's fabled Cosmos II Tracking System enables the Memphis firm to track more than 1.4 million packages daily. Its heart is a pocket-size, full-function computer that links to huge central databases (see story page 77).

▲ **The giant Corinthian columns** *of The National Building Museum provided the backdrop to the second annual* Computerworld Smithsonian Awards *gala in Washington, D.C., last week.*

▲ **H. Ross Perot's** *accomplishments both in and out of the computer industry earned him the Price Waterhouse Lifetime Achievement Award.*

Giorgio Sorani *of Lubrizol oversaw development of a database that made safety data about* ▼ *hazardous chemicals more accessible.*

Ernst Mollet *represented Soffex,* ▲ *one of two international winners. His association's national exchange system has boosted Switzerland's financial services prowess.*

S. J. Camarata *accepted the* ▶ *award for the Environmental Systems Research Institute, which helps manage geographic databases.*

Perot *with* ▶ *Computerworld Publisher Fritz Landmann.*

▲ **Judy Woodruff,** *chief Washington correspondent of the MacNeil/Lehrer News Hour, emceed the ceremony.*

◀ **Charles Garvin** *accepted for Personics, which developed an innovative technique for recording customized audio tapes.*

Patrick McGovern, *chairman of International Data Group and founder of Computerworld.* ▼

▲ **Sharon Wilder** *accepted the Medicine award for Purdue University Professor Michael Rossman, who was honored for his research on modeling viruses.*

▲ **Surachai Srisaracam** *of the Thailand Ministry of the Interior worked on a demographic database that tracks 50 million people.*

Larry Boyd's *Berkeley Systems* ▶ *has built a link between the Apple Macintosh and blind users.*

NEWS SHORTS

IBM fills board seats

IBM's board of directors and executive management got some beefing up last week with new members and officers. Judith Richards Hope, a senior partner at the California-based law firm Paul, Hastings, Janofsky & Walker, was elected to the board, as was Frank A. Metz Jr., an IBM senior vice-president of finance and planning and chief financial officer. New IBM officers elected by the board include Nobuo Mii, vice-president and general manager of Asia Pacific Technical Operations, IBM Japan; John E. Hickey, named IBM secretary; and William W. K. Rich, named IBM vice-president and president of the services sector division.

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Covia enters hotel wars

The battle of the hotel reservation systems has stepped up a notch. Last week, Loews Hotels and Covia Corp. announced a joint venture to provide such a service. The new Loews/Covia company is called CLAS International and is based in New York. Like the Confirm system previously announced by AMR Information Services, Budget Rent-A-Car Corp., Hilton Hotels Corp. and Marriott Corp., CLAS offers a turnkey system designed to help hotels tie marketing efforts with reservations.

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Feds eye airline fare changes

The U.S. Department of Justice has begun an antitrust investigation into the way airlines post fare changes on the industry's electronic tariff clearinghouse, run by the Airline Tariff Publishing Co., the department confirmed last week. Investigators reportedly suspect that the airlines are using special codes in their databases to communicate with competitors and fix prices, but several airlines denied any price collusion.
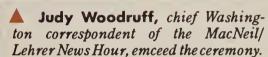
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News services unite

Dow Jones Information Services and Datatimes, a subsidiary of The Oklahoma Publishing Co., have entered a joint marketing and service agreement to permit the computerized files of 640 international newspapers, magazines and news sources to be electronically searched through a single on-line database. Starting in July, the service will span four continents and give Datatimes network service subscribers the ability to create personalized libraries for onetime or ongoing use.

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Sharebase OKs sale

Sharebase Corp. stockholders last week approved the sale of the $29 million Los Gatos, Calif., firm to $210 million Teradata Corp. in Los Angeles. The merger, which had been planned for several months, combines the top two manufacturers of database "machines," which are systems dedicated to running relational database management systems. Sharebase Chief Executive Officer John Cavalier and Executive Vice-President Peter Cassidy left the firm last week.

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SQL standards group expands

Microsoft Corp. and Sybase, Inc., which together created the Microsoft/Sybase SQL Server, last week joined the SQL Access Group, an industry consortium that is trying to craft a single "vanilla" SQL standard for the entire industry. Just one week earlier, Cincom Systems, Inc. and Progres Software Corp. also joined the group, which now has 21 systems and database vendors as members. A year ago, industry analysts doubted that Sybase would join, since it sells gateway products that link its RDBMS with other vendors' DBMSs.

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Apple reacquires Claris

Apple Computer, Inc. last week brought back into the fold Claris Corp., the software company that it spun off three years ago. Apple, which had been the principal owner of Claris, said it will acquire Claris and run it as a separate operation. According to John Sculley, Apple's chairman and CEO, Claris will give Apple the opportunity to focus its software efforts on increasing the development and marketing of "multivendor configurations" as well as development of its flagship products.

Lotus

Ashton-Tate Corp.

"This could be an indication that at least some courts are willing to expand copyright coverage to look and feel," said Lee Hagelshaw, a computer industry law specialist and partner at the San Francisco law firm of Hagelshaw and Cole.

Lotus sued Paperback and Cambridge, Mass.-based Mosaic Software, Inc. three years ago, charging that their spreadsheet offerings were copies of 1-2-3. Because Mosiac was allowed to separate from the case when its lawyer fell ill, last week's ruling involved only Paperback.

Until Lotus brought the suit, it was generally assumed among developers that copyright law applied only to actual program code. But Keeton ruled last week that "the user interface of 1-2-3 is its most unique element and is the aspect that has made [it] so popular. That defendants went to such trouble to copy that element is a testament to its substantiality."

Paperback will appeal the decision, Vice-President of Sales and Manufacturing Mike Burdyck said.

Mosaic President Richard Dikran Bezjian vowed to continue selling its Twin spreadsheet line. "Mosaic Software has not lost," he said. "There are significant material differences between Mosaic's defense and [Paperback's]."

"This is an area where the courts must exercise an extreme amount of caution," Hagelshaw said. "If copyrights become more like patents, freezing players out of an idea, that would have a chilling effect on the industry."

In Philadelphia, copyright attorney Steven Shaiman saw little danger that the big chill would be ushered in by the Lotus ruling. "I don't think innovation will be stifled," he said.

Keeton's ruling, Shaiman said, detailed many instances of successful spreadsheet packages — Microsoft's Excel, for instance — that offer 1-2-3 features without copying 1-2-3 so clearly as to infringe on Lotus' copyright.

"The lines drawn in the court's opinion are not unclear at all," said Lotus general counsel Thomas Lemberg. Copyright protection, he noted, was not extended to file compatibility: "Nothing in the ruling precludes functional similarity."

Could have gone further

Longtime software developer Stephen Errico, now a Price Waterhouse partner in charge of computer-aided software engineering and software re-engineering, scoffed at the suggestion that Lotus' win would inhibit development. "I feel that developers will be encouraged at the thought that their original achievements can be safeguarded and not just picked off at will," he said.

The probable effect of the Lotus case on the end user, several industry observers said, is likely to be negligible. "This isn't really an issue for users," said Thomas J. Casey, senior computer development consultant at New York Life Insurance Co. in Waltham, Mass.

But some analysts said they fear that developers will go so far to avoid copyright infringement that they will force users to climb a painful learning curve every time they go from one software package to another.

At least one class of users is about to feel the court's impact. At a hearing scheduled for the July 19, Lotus is expected to ask for an immediate injunction against Paperback Software's sales of VP-Planner. It is not likely to end there, several industry observers said.

"There is little doubt in my mind that this will serve as a precedent weighing in Apple's behalf in the Apple vs. Microsoft case," Paine Webber, Inc. analyst Robert Therrien said. Apple is currently in court against Microsoft on copyright infringement matters arising from the development and marketing of Windows technology.

Apple and Microsoft both said they would not comment on the Lotus case.

Even before Apple and Microsoft are affected, he added, software vendor Borland International may feel the weight of the Lotus decision. Borland's Quattro and Quattro Pro spreadsheets have an optional 1-2-3-compatible interface. Lemberg declined to say whether the company will pursue other vendors.

A Borland spokesman would not comment, saying the firm had not seen the judge's decision. "We believe that all aspects of our Quattro spreadsheet products are original, including the programming and command structures," he said.

Stanley Witkow, general counsel for Ashton-Tate, hailed the decision as an affirmation of copyright claims against Fox Software, Inc. and its Foxbase Plus package. Referring to a portion of the decision affirming the application of copyright to a program's command structure, he said: "We have always argued that the command language is part of the interface; this decision looks good for us."

Staff members Sally Cusack, James Daly and Charles von Simson contributed to this report.

Lotus' top offices rumble with change

BY RICHARD PASTORE
CW STAFF

CAMBRIDGE, Mass. — Lotus Development Corp. shuffled the executive deck last week while bringing in new blood from Apple Computer, Inc.

The company hired Donald P. Casey as vice-president of its newly unified spreadsheet division. Casey spent two years at Apple as vice-president of networking and engineering, where he was responsible for Appletalk products. Prior to that, he spent 21 years in management positions at IBM.

A Lotus spokesman said that Casey will lead 1-2-3's thrust into the Apple Macintosh environment but added that Casey was not hired specifically for his Apple experience.

However, Lotus Chief Executive Officer Jim Manzi, who saw his company's proposed merger with local-area networking vendor Novell, Inc. fall through last month, said Casey's experience "will help us focus on emerging network computing opportunities."

Other executive changes include the following:

• Frank Ingari, former vice-president of the personal computer spreadsheet division, will become vice-president of the Emerging Markets Business Group.

• David Roux, former vice-president of the Information Services Group, will become vice-president of business development focusing on attracting new users to personal computing.

• June Rokoff will become vice-president of the Communications and Information Services Group. She was most recently vice-president of the graphics and information management division.

Lotus' Ingari *to be VP of Emerging Markets group*

With the moves, Lotus is now restructured into five discrete, decentralized business units: the Software Business Group, the International Business Group, the Consulting Services Group, the Communications and Information Services Group and the Emerging Markets Business Group.

High tech gets it there on time

This week, Computerworld *begins a series of profiles of* Computerworld Smithsonian Award *winners.*

BY NELL MARGOLIS
CW STAFF

If you should ever get the urge to talk to a grateful user about the benefits of Federal Express Corp.'s Cosmos II Positive Tracking System, you won't have to pick up the phone; just close your eyes and try to remember what life was like before it.

More than a decade ago, Fred Smith, the near-legendary chairman of the Memphis-based delivery firm, realized that wholly reliable customer service depended on the firm's ability to track a package at every change of

Cosmos II *Positive Tracking System hailed by all*

hands or direction. The result — Federal Express Cosmos II, one of the most famous examples of strategic information systems — was honored last week as the 1990 *Computerworld Smithsonian Award* winner in the transportation category.

"The Cosmos II concept was terrific," said Suzanne Pitney, a consultant at Lexington, Mass.-based Federal Express user site Nolan Norton & Co. There was only one hitch, she noted: The technology needed to translate the theory into practice had not been invented yet.

Getting from Smith's insight to Supertracker — a handheld computer with 392K bytes of memory that can accept data from key entry, bar-code scanning or electronic coupling and withstand the rough-and-tumble world of warehouses, docks and trucks — took approximately 10 years and countless risks, said Harry Dalton, Federal Express' vice-president of strategic integrated systems.

"The general reaction of vendors to the requirements laid out by Dalton's group," Pitney said, "was ridicule and scorn." Ultimately, Federal Express gambled on Hand Held Products, Inc., "a small Charlotte, N.C., electronics engineering firm with limited manufacturing capability," said Federal Express managing director of advanced technology Jim Turpin. Along the way, "the scariest moments were when you stopped to wonder whether or not it would really work," Turpin said.

Safe bet

Federal Express bet the company on it and won. Today, Dalton said, 46,000 Supertrackers, 1,400 quad racks, 2,400 station bases and 26,000 mobile radio attachments in some 1,500 worldwide locations link with a panoply of Federal Express information systems to track the precise point-to-point progress of approximately 1.4 million packages at any given time.

Even when Dalton had the hoped-for technology literally in the palm of his hand, excruciating work lay ahead, he told a Nolan Norton conference recently. The company's Supertracker training effort — a two-stage endeavor that first saw 22,000 couriers through two-hour training sessions over a 10-month period and then schooled 23,000 more over a five-month stint — stands as the largest technology training program outside of the military.

Much of the program's success, Turpin said, results from the fact that Federal Express, like the military, believes that training is no sterile classroom exercise. Every new hire at the firm, computer technologists prominently included, must spend six weeks in the field.

"The only way to understand our environment is to go out and live it," he said. "Get in a uniform! Drive a truck!"

In addition, according to several Federal Express executives, Cosmos II is an ongoing testimonial to a rare level of top-down support and full-firm participation. "This project actually died a few times and got resurrected," Turpin said.

MCI goes full steam ahead in data services

BY ELISABETH HORWITT
CW STAFF

WASHINGTON, D.C. — One month after announcing its official entry into the data networking business, MCI Communications Corp. claimed last week that it can serve up pretty much anything AT&T can provide in this area — if the customer and the contract are big enough.

"Right now, we can turn on a dime" to fulfill the data networking needs of "strategic accounts of $100,000-plus per month," said MCI Vice-President of Data Marketing Donald M. Heath. The firm has begun offering enhanced data networking services such as 45M bit/sec. connections and high-speed switched services to certain large customers, such as Chrysler Corp. and the National Science Foundation, MCI spokesmen indicated.

Currently, MCI is working hard to finish implementing intelligence and reliability standards across its backbone network to provide such services to all its customers — not just the top buyers, Heath said. The next step in this process for MCI, Heath said, will be to "bring out as fast as possible base elements such as dial-up 384K bit/sec. lines and multidrop digital lines."

MCI is investing $125 million this year and will invest about $300 million in 1991, out of a yearly $1.2 billion budget, to meet customers' demand for high-speed data services, according to MCI Executive Vice-President Richard T. Liebhaber.

During the next couple of years, MCI will roll out such services as switched high-speed services, bandwidth on demand and greater customer control of the network, Heath said.

A major introduction that will include the long-awaited data version of MCI's virtual networking service, Vnet, will take place at the Telecommunications Association conference in San Diego this fall, Heath said.

But the company still has a long way to go if it hopes to compete with AT&T for the data communications market, according to one consultant.

MCI is still far behind AT&T when it comes to providing commercial data networking services, according to Berge Ayvazian, a vice-president at Boston-based consulting firm The Yankee Group: "At [the International Communications Association conference in May], MCI and AT&T both ran ads boasting of their data capabilities, but while MCI was saying 'we can talk binary' with a lot of 1s and 0s, AT&T gave an eight-page description of services."

MCI should shortly fill one long-standing gap in its product line with a packet-switching service that it will resell from Infonet, Heath said.

MCI recently purchased a 25% stake in the international packet-switched service vendor and has arranged for Infonet's domestic packet switches to be co-located on its own sites, he added.

Fiber net firm charges BOC financing abuses

BY JOANIE M. WEXLER
CW STAFF

OAKBROOK TERRACE, Ill. — Metropolitan Fiber Systems, Inc. urged the Federal Communications Commission and six state public utility commissions last week to investigate possible misappropriations of ratepayer funds by Bell operating companies (BOC) for subsidizing fiber-based metropolitan-area networks.

The action goes to the heart of the issue of increased competition in the local loop, which is starting to give corporate customers a wider range of networking choices.

In letters to the regulatory bodies, MFS, an independent provider of fiber MANs, characterized the building of the networks as a new business venture. Such ventures, according to monopoly regulation, must be funded by sources other than revenue collected from the general ratepaying public.

MFS President Royce Holland said that by cross-subsidizing, the BOCs gain an unfair advantage, because they draw on a

MFS' Holland

much larger pool of financial resources — the captive audience of public telephone users — to fund their networks and can charge lower prices.

MFS said that, based on its review of recent tariffs filed by Southwestern Bell Telephone Co. and US West, the public is shouldering the cost of services enjoyed by a select few large corporate customers. Similar tariffs by Ameritech, Nynex Corp. and Pacific Telesis are pending.

US West contends that the fiber rings are a form of modernization for the existing public network in response to customer needs.

"We're investing in the local infrastructure," said John Kure, director of US West communications for private-line transport. "I can't say that initially all of our customers will benefit, but a wide range of them will."

David Ho, Southwestern Bell district manager, said, "Our tariffs ask for rates that are higher than the cost of service. The people using the service are primarily paying for it, so I can't see how that qualifies as cross-subsidization."
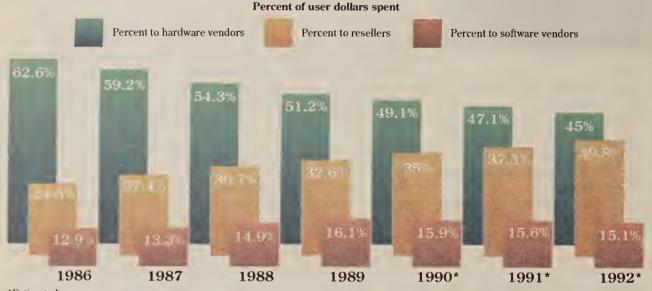
TRENDS

Third-party channel

A shift in distribution preferences is bringing more of the dollars spent by end users into the hands of third-party dealers instead of the manufacturers themselves
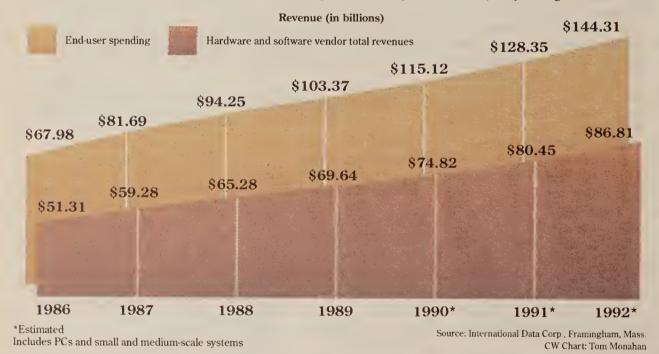
Revenue shift

Software vendors will be taking home the same amount, but hardware vendors will continue to see fewer dollars spent directly by end users

Percent of user dollars spent

■ Percent to hardware vendors　■ Percent to resellers　■ Percent to software vendors

	1986	1987	1988	1989	1990*	1991*	1992*
Hardware vendors	62.6%	59.2%	54.3%	51.2%	49.1%	47.1%	45%
Resellers	24.5%	27.4%	30.7%	32.6%	35%	37.3%	39.9%
Software vendors	12.9%	13.4%	14.9%	16.1%	15.9%	15.6%	15.1%

*Estimated
Includes PCs and small and medium-scale systems
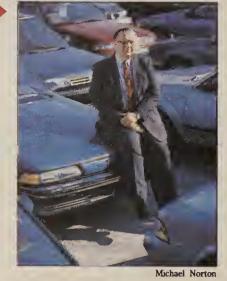
Expanding breach

Estimates are that in two years, third-party dealers will be claiming more than $57 billion of direct dollars spent by users from vendors, compared with only $16.7 billion four years ago

Revenue (in billions)

■ End-user spending　■ Hardware and software vendor total revenues

	1986	1987	1988	1989	1990*	1991*	1992*
End-user spending	$67.98	$81.69	$94.25	$103.37	$115.12	$128.35	$144.31
Hardware and software vendor total revenues	$51.31	$59.28	$65.28	$69.64	$74.82	$80.45	$86.81

*Estimated
Includes PCs and small and medium-scale systems

Source: International Data Corp., Framingham, Mass.
CW Chart: Tom Monahan

NEXT WEEK

Alamo Rent-a-Car is a company that believes it tries even harder, and a big reason for this is energetic Vice-President of Information Systems **Tom Loane.** He combines in-depth knowledge of the rental business with a dynamic, hands-on management style. Learn more about Loane and his ideas in the Manager's Journal profile.

Michael Norton

Has your CEO caught the outsourcing bug? Are users demanding better service at lower costs? Outsourcing and decentralization are not right for everyone. For many, data center restructuring may be a better approach. Restructuring means re-examining resources and priorities to get the most of your IS dollar. To learn more, read In Depth.

ANNOUNCING THE CODEX 3500, THE MOST FLEXIBLE DSU/CSU EVER.

Today, rapidly changing digital tariffs and services make network planning and operation a problem. To be prepared, you need a product that lets you take advantage of the benefits of digital technology quickly and easily.

The new Codex 3500 has the flexibility to do just that. It's a multi-service, multi-rate DSU, so it operates with both DDS I and DDS II type services and supports speeds from 2.4 to 56 Kbps. In addition, an integral multiplexer lets you make the most of one circuit.

For critical applications, the Codex 3500 protects you from circuit failure with a back-up capability that automatically switches your data to a modem or a switched digital data unit. And you can control the 3500 using a Codex Integrated Network Management System, IBM's NetView or both concurrently.

THE ONLY WAY TO GET IMMEDIATE ACCESS TO THE BEST RATE AVAILABLE.

You also benefit from Rate Adaption, a Codex feature that lets you lease a lower-cost 56K line and then run almost any data rate you choose. So you can save on line costs without the expense of up-grading equipment.

To find out how the new Codex 3500 lets you choose the data rates and services you need, call us at 1-800-426-1212 ext. 7209.

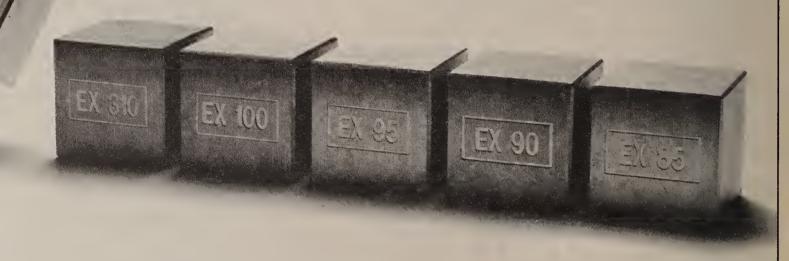And see how easily you adapt to a product that adapts to you.

codex | THE NETWORKING EDGE

Ⓜ MOTOROLA

"A DSU THAT ADAPTS TO MY NEEDS? THAT'S A FIRST."